

AUTHOR INDEX

- A
- Åberg, B., 341
- Abraham, S., 322
- Abrahamson, E. W., 276
- Adler, E., 12
- Adolf, M. S., see Spiegel-Adolf, M.
- Agarwala, S. C., 18
- Aikawa, I., 291, 300, 309
- Albert, A., 5, 24
- Alderfer, R. B., 36, 78
- Algeus, S., 59, 63, 361
- Allard, H. A., 196
- Allee, W. C., 257
- Allen, F. L., 311, 312, 317
- Allen, M. B., 325
- Allen, O. N., 77, 138
- Allen, P. J., 225-48; 228, 238, 239, 240, 242, 243
- Allen, R., 242
- Allison, J. R., 219, 220
- Allison, L. E., 82, 84, 86
- Allison, R. K., 325
- Alscher, R. P., 292, 293
- Altman, K. I., 292
- Altmann, S. M., 3, 12
- Amoureux, G., 135, 150
- Anderson, D. B., 183
- Anderson, D. R., 290
- Anderson, E., 264
- Anderson, J. A., 228, 239
- Anderson, L. C., 35, 44
- Anderson, R. J., 134
- Andreae, S. R., 358, 361, 369, 370, 371, 372
- Andreae, W. A., 358, 361, 369, 370, 371, 372
- Andreeva, T. F., 286
- Andresen, N., 123
- Anker, L., 175
- Appleman, D., 68, 289, 293, 324
- Araki, G., 272, 277
- Arens, K., 228
- Armstrong, F. A. J., 57
- Arnaud, C., 146
- Arnold, W., 110, 307, 310, 311, 312
- Arnold, W. A., 298
- Arnon, D. I., 4, 13, 57, 70, 123, 289, 301, 309, 324, 325
- Arnow, P., 324
- Aronoff, A., 295, 297
- Aronoff, S., 323, 326
- Artom, C., 124
- Ashby, W. C., 347, 348, 352, 353
- Ashkinazi, M. Z., 276
- Askew, H. O., 34
- Atkins, W. R. G., 70
- Atkinson, D., 352
- Atkinson, D. E., 347
- Audrieth, L. F., 287
- Audus, L. J., 85, 341, 344, 345, 347, 351, 352
- Auhagen, E., 12
- Avens, A. W., 191, 198
- Avery, G. S., 346, 348, 359
- Avineri-Shapiro, S., 77
- Axelrod, A. E., 12
- Axelrod, B., 120, 121, 122, 123
- B
- Bachus, G. E., 170
- Baer, F. E., 18
- Baertschi, P., 323
- Bahgat, M., 187, 190, 191, 194
- Bailey, K., 14
- Baker, C. E., 210, 213, 214
- Baker, R. S., 361, 362, 363, 369, 370, 371, 372
- Baldwin, I. L., 154
- Ball, N. G., 177
- Ballentine, R., 4
- Banbury, G. H., 166, 167
- Bandurski, R. S., 120, 121, 122, 123, 293, 341, 342
- Banfield, W. M., 140
- Bannister, T. T., 294
- Baranov, V. I., 301, 324
- Bard, R. C., 9, 24
- Barker, H., 18
- Barker, H. A., 59, 64, 327
- Baritrop, J. A., 303, 305
- Baroccio, A., 328
- Bartholomew, W. V., 77
- Basel, H. K. U., 272, 277
- Bassham, J. A., 59, 303, 304, 322
- Batjer, L. P., 200
- Batts, C. C. V., 226
- Bauer, E., 7
- Bauer, L., 292
- Baumeister, G., 350
- Bayliss, N. S., 294
- Bean, R. S., 23
- Beattie, J. H., 44
- Bechhold, H., 134
- Becker, R. S., 278
- Beevers, H., 20
- Behrens, M., 344, 345, 346, 348, 353, 369
- Beinert, H., 14, 17
- Bell, H., 183
- Bengry, R. P., 59
- Bennet-Clark, T. A., 177, 179, 344, 345, 346, 349
- Bennett, J. P., 192, 197
- Bensley, R. R., 115
- Benson, A. A., 59, 303, 304, 322, 323
- Benson, N. R., 36
- Bentley, J. A., 346, 348, 349
- Avery, G. S., 346, 348, 359, 365
- Bentley, O. G., 24
- Berducoti, J., 241
- Beresford, R. H., 329
- Berge, T. O., 133, 134, 135, 154
- Berger, J., 346, 348, 359
- Berger, L., 9
- Bergmann, H., 135
- Bergmann, W., 325
- Bergren, W. R., 360
- Berridge, E. M., 134
- Berthelot, A., 135, 150
- Berthous, A., 364
- Besset, J., 372
- Beyers, E., 216
- Beythien, A., 195
- Bezinger, E. N., 285
- Biale, J. B., 122, 123, 205, 214, 215, 219
- Bickle, A. S., 346, 348, 349, 354, 356, 357
- Biddulph, O., 48
- Billimoria, M. C., 62
- Billings, W. D., 257, 268
- Binkley, F., 13
- Biochenko, E. A., 301, 324
- Birkeland, C. J., 43
- Bishop, N. I., 298
- Bitancourt, A. A., 145
- Blaauw, A. H., 184
- Blaauw, O. H., 313
- Black, L. M., 133
- Black, M. W., 186, 198, 199, 201
- Blackman, F. F., 251
- Blair, I. D., 226, 228, 229, 230, 239
- Blanchard, M., 355, 358
- Blascho, H., 358, 370
- Blinks, L. R., 93-114; 93, 94, 95, 96, 97, 98, 101, 102, 103, 104, 106, 108, 109, 110, 111, 119, 120, 294, 297
- Bloch, R., 141
- Blondeau, R., 364
- Blumenthal, F., 134
- Blumer, S., 226
- Bock, R. M., 15
- Bodman, G. B., 83

- Boekel, P., 83
 Bogorad, L., 292
 Boivin, A., 134
 Bokman, A., 123, 127
 Bold, H. C., 56
 Bolle-Jones, E. W., 344, 345, 365
 Bolshakova, N., 195
 Bonde, E. K., 344, 353
 Bonner, J., 115, 120, 121, 122, 123, 136, 145, 147, 149, 157, 184, 191, 194, 196, 200, 215, 341, 342, 343, 344, 347, 351, 355, 356, 359, 365, 366, 367, 368, 369, 370, 371, 372
 Bonner, W. D., 367
 Bootj, H. L., 352, 364, 365, 367, 368
 Boresch, K., 93, 188
 Borodina, O. J., 352
 Bortels, H., 70, 144
 Borthwick, H. A., 197, 361
 Bould, C., 88
 Bouriquet, R., 147
 Bourne, E. J., 125
 Bowler, E., 284
 Boyer, P. D., 9, 10
 Boyes, W. W., 216, 217
 Boyle, A. M., 147
 Boyle, F. P., 344, 360
 Boynton, D., 31-54; 34, 35, 37, 38, 40, 41, 42, 43, 44, 45, 46, 49, 50
 Braud, T., 63
 Brackett, F. S., 316
 Bradbury, D., 287
 Bradfield, J. R. G., 115, 119
 Bradley, D. F., 303, 305, 323, 326
 Brakke, M. K., 116, 146
 Brann, J. L., 46
 Brasher, E. P., 37, 50
 Braucher, O. L., 33
 Braun, A. C., 133-62; 133, 136, 137, 138, 139, 140, 141, 142, 144, 151, 152, 153, 154, 155, 157
 Brauner, L., 163-82; 165, 166, 176, 177, 350, 361, 362, 363
 Bregoff, H. M., 326
 Brewster, L. E., 13
 Brian, R. C., 77, 366, 367, 368
 Briganti, G. M., 328
 Briggs, G. E., 310, 315, 325
 Brilliant, V. A., 328
 Brilling, S., 287
 Brin, G. P., 277, 278, 291, 300
 Brinkerhoff, L. A., 38
 Bristol-Roach, B. M., 59
 Brittingham, W. H., 134
 Brooks, C., 205, 206, 207, 208, 216
 Brooks, F. T., 230
 Brooks, I. A., 298
 Brooks, R. M., 186
 Brown, A. H., 124, 271, 287, 302, 315, 316, 317, 322, 323, 325, 326
 Brown, D. S., 186
 Brown, J. B., 348, 353
 Brown, J. C., 24
 Brown, J. G., 147
 Brown, J. W., 341, 344, 355
 Brown, N. A., 135, 140, 147, 151, 152
 Brown, R., 127
 Bruin, P., 76
 Brummond, D. O., 122, 123
 Brunstetter, B. C., 343
 Bryan, W. H., 123, 128
 Buchanan, D. L., 323
 Buchanan, J. G., 323
 Bucher, T., 9, 294
 Buchholz, K. P., 361, 363
 Buchholz, W., 315, 318
 Buder, J., 166
 Buller, A. H. R., 225
 Bullock, R. M., 36
 Bünning, E., 173, 191, 194, 363
 Burk, D., 300, 313, 316, 318
 Burkholder, P. A., 364
 Burkholder, P. R., 146
 Burlew, J. S., 329
 Burnett, E., 82, 84, 86, 87
 Burns, G. R., 106, 107
 Burrell, A. B., 34, 38, 44, 46
 Burrett, W. T., Jr., 14, 17
 Burris, R. H., 23, 119, 122, 136, 144, 150, 327, 344, 369, 371, 372
 Bustra, M., 283, 284
 Buvat, R., 155
 Buzzati-Traverso, A. A., 229
 Byers, H. G., 258
- C
- Cain, J. C., 37, 38, 44
 Cain, S. A., 251, 257
 Caldwell, R. M., 228
 Calvin, M., 1, 7, 8, 59, 111, 284, 303, 304, 305, 322, 323, 326
 Cameron, J. W., 351
 Camp, A. F., 33
 Campbell, G. K. C., 186
 Camus, G., 350
 Camus, G. C., 135, 149, 153, 157
 Canellakis, E. S., 327
 Cantoni, G. L., 11
 Caplin, S. M., 193
 Caputto, R., 9, 23
 Caputto, R. L., 9, 11
 Cardini, C. E., 9, 11, 23
 Carolus, R. L., 220
 Carrol, B. H., 293
 Carroll, R. B., 361, 363
 Carter, M., 45
 Castelfranco, P. A., 123, 127
 Cervigni, T., 328
 Chamberlain, J. C., 42
 Champagnat, P., 184
 Chance, B., 119, 129
 Chandler, W. H., 32, 33, 183, 184, 185, 186, 188, 191, 197, 200
 Chan-Thom, L. A., 192, 194
 Chapman, H. D., 32, 40, 42, 44
 Chapman, P. J., 191, 198
 Chargaff, E., 124, 134
 Chen, S. L., 314
 Cherevick, W. J., 226, 228, 229, 232
 Chernyak, M. S., 286
 Chervenak, M., 39
 Cheslock, K., 12
 Chester, K. S., 225, 227, 229, 240
 Chestnut, V. K., 210, 211
 Chiba, Y., 292, 310, 311
 Chibnall, A. C., 211
 Childs, J. F. L., 239
 Chittenden, E., 34
 Cholodny, N. G., 359
 Chouard, P., 183, 185
 Christensen, E., 364
 Christensen, S. A., 347, 352
 Christian, W., 8, 9, 24
 Christiansen, G. S., 194
 Christie, G. S., 4, 120
 Christopher, E. P., 210
 Chu, S. P., 58, 62, 63, 64, 66, 67, 70
 Chucka, J. A., 37
 Clark, L. B., 56, 58, 64, 70
 Clark, T. A. B., see Bennett-Clark, T. A.
 Clausen, J., 260, 261, 264, 265, 267
 Clayson, D. H. F., 19
 Clendenning, K. A., 97, 119, 289, 291, 309, 310, 312, 326
 Cloutier, A. A., 10
 Clowes, A. J., 70
 Cohan, M. S., 123, 288
 Cohen, M., 284
 Cohen, S., 9
 Coleman, M. F., 154
 Colowick, S. P., 9, 11, 22, 352
 Colter, W. G., 89
 Comar, C. L., 14, 17
 Combs, G. F., 329
 Compton, O. C., 44
 Conn, E., 12
 Conn, E. E., 123, 301
 Constantinesco, M., 147
 Constantinesco, T., 147
 Cook, A. H., 93
 Cook, J. A., 35, 40, 41, 42, 43, 44, 45, 46
 Cooke, A. R., 342
 Cooley, J. S., 205, 206, 207,

- 208
 Cooper, E. A., 78
 Cooper, L. H. N., 62, 69, 70
 Cooperstein, S. J., 121
 Cords, H. P., 88
 Cori, C. F., 9
 Cori, G. T., 9
 Corner, E. J. H., 226, 228
 Cornfield, J., 313
 Cowart, F. F., 41, 44
 Craft, C. C., 214
 Crafts, A. S., 41
 Craig, F. N., 58
 Craigie, J. H., 228
 Cramer, M., 56, 61, 62
 Crewther, W. G., 24
 Crickard, R. G., 316
 Crocker, W., 184, 191
 Crook, E. M., 3, 12
 Crowder, J. N., 218
 Crowe, A. D., 34
 Culler, D., 221
 Cullinan, J. P., 200
 Curtis, O. F., 191, 194
 Cutter, V. M., Jr., 232, 237, 238, 244
- D**
- Dain, B. Y., 276
 Daker, W. D., 78
 Daly, J. M., 229, 240
 Damaschke, K., 316
 Dame, F., 136
 Danforth, W., 325
 Darrow, G. M., 199
 Darwin, C. R., 258
 Dassek, M., 168
 Davenport, H. E., 123, 287, 297, 303
 Davies, A. D., 121, 122, 123
 Davies, R., 216, 217
 Dávila Olivo, G., 342
 Davis, E. A., 325
 Dawson, C. R., 2, 14, 15, 19, 21
 Defago, G., 241
 Degtyar, R. G., 11
 Della Rosa, R. J., 292
 Deming, J. M., 87, 89
 Denffler, D. von, 344, 345, 346, 348, 353, 361, 362, 364, 369
 den Honert, T. H. van, see Honert, T. H., van den
 Denison, F. W., Jr., 22
 Denny, F. E., 187, 190, 191, 192
 De Renzo, E. C., 14, 17
 de Ropp, R. S., 133, 135, 136, 139, 140, 144, 147, 153, 157
 der Plank, J. E. van, see Plank, J. E. van der
 de Vázquez, E. S., see Santiago de Vázquez, E.
 de Villiers, D. J. R., see Villiers, D. J. R. de
- de Villiers, G. D. B., see Villiers, G. D. B. de
 Dickey, R. D., 33, 44
 Dickinson, S., 227, 228, 236
 Dickman, S. R., 10
 Diller, V. M., 324
 Dimond, A. E., 145, 146, 147, 364
 Dix, J. W., 199
 Dixon, K. C., 195
 d'Oliveira, B., 240
 Doman, N. G., 323
 Dormer, K. J., 123, 127
 Dorough, G. D., 111, 274
 Dounce, A. L., 115, 119, 125, 126
 Doyle, W. L., 59
 Drosdoff, M., 33, 44
 Dubos, R. J., 238
 Du Buy, H. G., 128, 289
 Ducet, G., 303
 Duel, H., 13
 Dufrenoy, J., 236, 239, 243
 Duggar, B. M., 109, 135, 136, 137, 141, 146, 147, 293
 Duhamet, L., 147
 Dunn, M. S., 286, 329
 Durfee, H. K., 344, 360
 Durrell, M. E., 147
 Dusi, H., 128
 Dutt, A. K., 84
 Dutton, H. J., 99, 109, 293
 Duysens, L. N. M., 104, 106, 109, 110, 293, 294, 297, 303, 313
 Dvornikova, P. D., 11
 Dyar, M. T., 123, 289
 Dynesen, E., 352, 367
- E**
- Eames, J., 189
 Eaton, F. M., 48
 Ebeling, W., 39
 Eberts, F. S., Jr., 144, 150
 Edgerton, L. J., 220
 Edgington, G., 258
 Edwards, G., 323
 Egami, F., 16
 Eggers, V., 136, 144, 149, 348, 351
 Eggert, F. P., 192, 196, 199
 Eggert, R., 38, 48
 Egle, K., 292
 Ehrensward, B., 327
 Ehrke, G., 103
 Ehrmantraut, H. C., 300, 309, 310, 311, 312, 314
 Ellinger, G., 78, 79
 Elliott, C., 133
 Elliott, W. H., 11
 Ellison, J. H., 220
 Elowe, D. G., 14, 18
 Elsdon, S. R., 302, 303, 326, 327
 Elstad, V., 326
 Elvehjem, C. A., 12
- Emerson, R., 60, 68, 96, 98, 99, 105, 310, 311
 Emmert, E. M., 37, 45
 Engelmann, T. W., 96, 98
 Engibous, J. C., 82, 84, 85, 86, 87, 88, 89
 Englard, S., 11
 Ennor, A. H., 18
 Eny, D. M., 325
 Ephrussi, B., 128
 Ergle, D. R., 48
 Erickson, J., 292
 Eriksson, I. -B., 94, 95
 Erxleben, H., 346, 360
 Euler, H. von, 12
 Evans, H. J., 15, 18, 301, 325
 Evenari, M., 184, 196
 Evstignejev, V. B., 272, 273, 277, 278, 291, 292
 Eyring, H., 93, 271, 298, 301, 303, 306, 307, 311, 312, 314
 Eysenbach, H., 18
 Ezell, B. D., 218
- F**
- Fabiyl, A., 297
 Fager, E. W., 59, 123, 324
 Felber, I. M., 80
 Feldmann, J., 95
 Feldmeier, I., 350
 Ferri, M. G., 347, 351, 355, 356, 361, 363
 Ferri, R. B., 363
 Fidler, J. C., 209, 211, 218
 Finean, J. B., 283, 285
 Finkle, B. J., 68, 293, 324
 Fischer, A., 344, 345, 346, 348, 353, 361, 362, 364, 369
 Fischer, F. G., 18
 Fischer, H., 272, 277
 Fischnich, O., 135
 Fisher, D. F., 207, 208
 Fisher, E. G., 35, 44
 Fiske, C. H., 18
 Fitzgerald, G. P., 58, 64, 66, 67, 69
 Fleming, H. K., 36
 Fleming, R. H., 57, 62, 64
 Flemion, F., 185, 199
 Flor, H. H., 226, 227
 Fogg, G. E., 39, 59, 62, 70, 327
 Folkes, B. F., 286
 Fong, J., 62
 Forster, L. S., 272, 273, 277, 294
 Förster, T., 282, 294, 295
 Forsyth, W. G. C., 77
 Fortini, S., 328
 Forward, D. F., 232, 233
 Foster, J. W., 22
 Foster, R. J., 341, 342
 Fowden, L., 59, 61, 328
 Fox, D. L., 98
 Föyn, B., 63

Franck, J., 271, 282, 306,
311, 315, 318, 321
Franke, W., 240
Frankfort, E., 292
Franzew, A. W., 65
Fraser, D., 327
Freed, S., 272, 273, 274,
275, 277, 292
Freeland, R. O., 328
Freitag, E., 59
French, C. S., 106, 107, 109,
271, 290, 293
Frenkel, A., 128
Frenkel, A. W., 124, 271,
287, 315, 322, 325, 326
Frey-Wyssling, A., 283
Friedman, B. A., 216
Fritz, I. G., 123
Fröier, K., 364
Fruton, J. S., 14
Fudge, B. R., 33
Fujimura, K., 291, 300, 309
Fujiwara, A., 325
Fuld, M., 12
Fuller, W. H., 77, 78, 85, 88
Fulton, S. H., 206, 210
Fults, J. L., 364
Funke, H., 359
Furst, M., 297

G

Gabrielsen, E. K., 106, 107
Gaffron, H., 59, 278, 310
Gaidukov, N., 107
Gairaud, C., 85
Gale, E. F., 358
Gallop, R. A., 212
Galston, A. W., 163, 165,
200, 344, 361, 362, 363,
367, 368, 369, 370, 371,
372
Gane, R., 211
Garcia, I., 292
Gardner, F. E., 135, 184,
189, 220
Gardner, V. R., 80
Gardner, W. H., 84
Garner, J. A., 242
Garner, W. W., 196
Gashkova, O. A., 195
Gassner, G., 226, 229, 230,
236, 239, 240
Gates, C. M., 219
Gäumann, E., 225, 226, 228
Gausman, H. W., 287
Gautheret, R. J., 133, 135,
136, 142, 144, 149, 153
Gavrilova, V. A., 272, 273,
277, 278, 291, 292
Geiger, W. B., 134
Geiger-Huber, M., 176
Gelderman, W. P., 316
Genkel, P. A., 186, 187, 195
Geoghegan, J. J., 78
Geoghegan, M. J., 58, 59, 62,
63, 77

Gerhardt, F., 208, 209
Gerloff, G. C., 58, 64, 66,
67, 69
Germ, H., 177
Gerretsen, F. C., 309, 324
Gessner, F., 177
Gest, H., 326, 327
Gibbons, F. P., 134
Gibbs, M., 322
Gibson, C. M., 227, 228
Gilder, H., 14, 15
Gile, P. L., 31
Gilmour, C. M., 77
Gilmour, H. S. A., 303, 307,
308, 311, 312
Ginsberg, J. M., 41
Glatzle, D., 173
Gleason, L. S., 292
Glick, D., 115
Glover, J., 326
Goddard, D. R., 115-32; 142,
150, 151, 238, 243
Godnev, T. N., 287, 293
Goedheer, J. C., 284, 327
Goldacre, P. L., 369, 370,
371, 372
Goldberg, E. D., 65, 69
Gomness, N. C., 88
Good, R., 251, 253, 255
Goodman, M., 326
Goodspeed, T. H., 364
Goodwin, R. H., 95
Gordon, S. A., 341-75; 145,
341, 342, 343, 344, 347,
349, 351, 352, 353, 354,
355, 360, 361, 362, 364,
365, 366, 367, 369
Gorham, P. R., 291, 309
Gorski, F., 300
Gortner, W. A., 358, 361,
369, 370, 371, 372
Gosset, A., 148
Gottlieb, D., 234, 242
Gouvernel-Guillemain, J.,
344
Gouwentak, C. A., 188
Grafflin, A. L., 10
Graf-Marín, A., 236
Grainger, J., 229, 232
Gran, H. H., 69
Grangaud, R., 292
Granick, S., 14, 15, 98, 283,
291, 292
Gray, R., 184, 194
Green, D. E., 12, 14, 15, 17,
355, 358
Green, L., 99
Green, L. F., 60
Green, N. M., 3
Green, R. H., 18
Greenfield, P., 146
Greenfield, S. S., 70
Greenstein, J. P., 13
Gretchushnikov, A. I., 237,
239, 240, 242
Gribbins, M. F., 78
Gries, G. A., 237

Griffiths, D. G., 211
Griggs, W. H., 40
Gromyko, E. P., 77
Gross, C. R., 46
Grube, K. H., 326
Guernsey, F. S., 344, 368,
369
Guest, P. L., 32, 40, 42, 44
Guidolin, R., 363
Guillemain, J. G., see
Gouvernel-Guillemain, J.
Gumilevskaya, N. A., 285
Gunckel, J. E., 359, 364
Gunsalus, I. C., 9, 24
Günther, G., 12
Gupta, B. M., 244
Gusserva, K. A., 70
Gustafson, F. G., 351
Gustafsson, A., 364
Gutsche, A. E., 134, 146,
152
Guthrie, J. D., 190, 191, 195
Guttenberg, H. v., 163, 173,
195, 343, 350, 351, 359,
360, 364

H

Haagen-Smit, A. J., 346,
357, 360
Haas, A. R. C., 36, 45
Hace, E., 315, 325
Hagan, R. M., 83
Hagen, C. E., 119, 125, 288
Hagerup, O., 264
Haley, D. E., 78
Hall, A. P., 241, 244
Hall, C. B., 38, 45
Hall, N. F., 20
Hall, W. C., 214
Haller, M. H., 218
Hamdi, H., 140
Hamilton, J., 33, 44
Hamilton, J. M., 35, 44
Hammer, C. L., 200, 287,
370
Hammer, K. C., 135, 288
Hampton, J. E., 147
Hand, M. E., 363, 365, 368
Hanotiaux, G., 83
Hansch, C., 341
Hansen, E., 215, 221
Hansen, J. R., 361, 363
Hanson, H. T., 14
Hanson, N. S., 36, 46, 50
Harcourt, U., 18
Harder, R., 70, 107
Harding, P. L., 216, 218
Hardison, J. R., 226
Hare, D., 347, 364
Harley, C. P., 46
Harman, J. W., 117, 121
Harris, A. Z., 303, 304
Harris, G. H., 187
Harrison, K., 14, 18
Hart, H., 225, 234
Hart, T. J., 70

- Hartman, H., 214
 Hartman, W. J., 11
 Hartree, E. F., 12, 95, 124, 287
 Harvey, H. W., 56, 57, 60, 61, 62, 66, 67, 69, 70, 293
 Harvey, R. B., 151
 Haskins, C. P., 55, 58, 71
 Hassebrauk, K., 226, 229, 230, 232, 234, 235, 236, 239
 Hassid, W. Z., 322
 Hatcher, E. S., 359
 Havinga, E., 195, 298, 300, 322
 Havis, L., 36, 200
 Hawkins, L. A., 205
 Haworth, W. N., 78
 Haxo, F., 96, 97, 101, 102, 103, 104, 106, 109, 294, 326
 Hayes, P., 322
 Heard, C. R. C., 20
 Hedrick, R. M., 79, 80, 81, 82, 85, 86, 88, 89
 Heggeness, H. G., 231
 Heilman, A. S., 218
 Heim, J. M., 237
 Heimbürger, G., 301, 324
 Heinrich, H. C., 287
 Heinze, P. H., 214
 Heller, W. R., 295
 Helleman, L., 4, 13
 Hemberg, T., 184, 193, 196, 343, 347, 360
 Henbest, H. B., 344, 345, 347, 348, 349, 350, 353, 356, 357, 360
 Hendee, E. D., 16
 Henderson, J. H. M., 136, 145, 147, 351
 Hendley, D. D., 123, 301
 Hendricks, R. H., 39
 Hendricks, S. B., 24, 197, 211, 288
 Henry, B., 136, 141
 Henze, R. E., 210, 214
 Herbert, D., 12
 Herisset, A., 327
 Hers, H. G., 8, 9
 Herschberg, L. H., see Heymann-Herschberg, L.
 Hertz, E., 285
 Hesse, C. O., 40
 Hestrin, S., 77
 Heuckel, A., 166
 Hewitt, E. J., 1, 4, 13, 18
 Hey, D., 106
 Heymann-Herschberg, L., 37
 Heytler, P. G., 14, 17
 Hibbard, P. L., 32
 Hibbert, H., 148, 149, 150, 151
 Hiesey, W. M., 260, 261, 264, 265, 267
 Hildebrand, E., 144
 Hildebrand, E. M., 140
 Hildebrandt, A. C., 133, 144, 146, 147
 Hill, A. G. G., 186
 Hill, G. R., 39
 Hill, H., 34, 287
 Hill, J. B., 134
 Hill, R., 95, 123, 124, 271, 287, 297, 303, 317, 325
 Hinsvark, O. N., 47, 360
 Hirao, H., 291, 309
 Hirsch, H. M., 128
 Hirschfeld, H., 134
 Hitchcock, A. E., 352, 357, 364
 Hoagland, D. R., 32
 Hobby, G., 313
 Höber, R., 127
 Hockenhull, D. J., 369
 Hoerr, N. L., 115
 Hoffman, M. B., 220
 Hogan, G. L., 325
 Hogeboom, G. H., 115, 117, 119, 121, 126, 127
 Hogness, T. R., 12
 Holley, A. D., 344, 360
 Holley, R. W., 344, 360
 Holmes, E. G., 195
 Holt, A. S., 106, 107, 295, 296, 297, 298
 Holter, H., 116
 Holzer, E., 325
 Holzer, H., 325
 Honert, T. H., van den, 60
 Hoover, W. H., 106
 Hopkins, E. F., 67, 69
 Horecker, B. L., 12
 Horne, V., 364
 Horowitz, L., 308
 Horwitz, L., 123
 Hotson, H. H., 235, 237, 238
 Houff, W. H., 360
 Housley, S., 348, 349, 352, 353, 356, 357, 365
 Howard, W. L., 185, 189, 200
 Hruschka, H. W., 220
 Huber, H., 176, 363
 Huber, M. G., see Geiger-Huber, M.
 Huellin, F. E., 210, 211, 212
 Hughes, D. E., 241
 Humbert, R. P., 36, 46, 50
 Humphrey, H. B., 236, 239, 243
 Humphries, E. C., 184
 Hurd-Karrer, A. M., 227
 Husson, C., 286, 293
 Hutchings, B. L., 14, 17
 Hutchinson, G. E., 66
 Hutner, S. H., 55, 58, 59, 67, 68, 71, 287
- I
- Ibrahim, I. A., 235
 Inada, Y., 291, 300, 309
 Isaka, S., 363
 Isenberg, F. M. R., 220
 Iwanura, T., 315, 325
 Iyer, K. R. N., 76
- J
- Jackson, D. F., 328
 Jacobs, E. E., 295, 296, 297
 Jacobs, W. P., 350, 359
 Jacobson, L., 1
 Jaffe, H., 292
 Jagendorf, A. T., 118, 123, 124, 125, 285, 286, 288, 292, 302
 James, G. M., 20
 James, W. O., 20, 122
 James, W. W., 183, 184
 Jamison, F. S., 38, 45
 Jamison, V. C., 83
 Jeffery, C. W., 186, 198
 Jensen, C. O., 133, 220
 Jensen, K. A., 347, 352, 367
 Jerchel, D., 344, 347, 361
 Joerges, E. L., see Lehle-Georges, E.
 Johannessen, G. A., 220
 Johnson, J. E., 20
 Johnson, M. O., 31
 Johnson, M. W., 62
 Johnson, T., 225, 226
 Johnston, C. O., 236
 Johnston, E. S., 364
 Johnston, F. A., Jr., 190
 Joklik, W., 16
 Joley, L. E., 186
 Jones, E. R., 344, 345, 347, 348, 349, 350, 353, 356, 357, 360
 Jones, E. W., 18
 Jones, E. W. B., see Bolle-Jones, E. W.
 Jones, R. L., 351, 352, 355
 Jones, R. W., 288
 Jones, V. V., 119, 125, 288
 Jones, W. W., 36, 218
 Jordan, J., 316
 Joselow, M., 19
 Jucker, E., 93
 Judah, J. D., 4, 120
 Jussier, J., 150
 Juster, P., 134
- K
- Kachan, A. A., 276
 Kachmar, J. F., 10
 Kaila, A., 78
 Kalekar, H. M., 11
 Kaleita, E., 14, 17
 Kallman, H., 297
 Kalnitsky, G., 5, 11
 Kamen, M. D., 302, 303, 326, 327
 Kaplan, N. O., 11, 22, 352
 Kardos, L. T., 38, 48
 Karrer, A. M. H., see Hurd-Karrer, A. M.

- Karrer, P., 93
 Kaspers, J., 294
 Kassem, M. M., 192
 Katchalsky, A., 90
 Kates, M., 123, 288
 Kato, A., 13
 Kato, J., 363
 Kato, S., 272, 277
 Katsural, T., 94
 Kauffmann, F., 134
 Kaufman, J., 220
 Kautsky, H., 306, 307
 Kawaguchi, S., 322
 Kay, L. D., 303, 304
 Kearney, E. B., 11
 Keck, D. D., 260, 261, 264, 265, 267
 Kefford, N. P., 179, 344, 345, 346, 349
 Keilin, D., 12, 14
 Keitt, G. W., 140, 151
 Kelley, V. W., 41
 Kelley, W. P., 31
 Kennard, W. C., 200
 Kennedy, E. J., 220
 Kennedy, S., 310
 Kent, M., 358, 361, 369, 370, 371, 372
 Kent, N. L., 230
 Kenten, R. H., 347, 352, 353, 356, 371
 Kern, M., 20
 Kerner, A., 258
 Kersten, H., 347, 364
 Kersten, H. J., 324
 Kersten, J. A. H., 99, 109, 299
 Kertesz, D., 21
 Kessler, B., 192
 Kessler, E., 325
 Kessler, K. L., 219, 220
 Ketchum, B. H., 55-74; 56, 60, 61, 63, 64, 65, 66
 Keyssner, E., 149
 Khalil, A., 341
 Khudyakova, R. I., 323
 Kidd, F., 206, 208, 209, 210, 213, 216, 217, 218
 Kimball, M. H., 191
 Kitasato, Z., 94
 Kivinen, P., 78
 Klein, D. T., 145, 154
 Klein, G., 149, 151
 Klein, R. M., 23, 137, 141, 142, 143, 144, 145, 149, 150, 151, 154, 341, 351
 Klein, W. H., 200, 326
 Klinker, J. E., 37, 45
 Klomparens, W., 370
 Klosty, M., 325
 Klotz, I. M., 1, 2, 7, 367
 Klugh, A. B., 103
 Knight, H. J., 42
 Koepfli, J. B., 357, 360
 Kögl, F., 167, 346, 350, 354, 357, 360, 361
 Kok, B., 316, 325
 Kolthoff, I. M., 316
 Komura, H., 135
 Komuro, H., 135
 Korkes, S., 12
 Kornberg, A., 4, 10, 11, 12
 Koski, V. M., 290
 Kosobutskaya, L. M., 291, 296, 298, 303, 307, 309
 Kostermans, D. G., 350, 354, 357
 Kovoer, A., 147
 Kraemer, L. M., 12
 Kramer, M., 192, 193, 343
 Krasnoselskaya, J. A., 187, 188, 189
 Krasnovskii, A. A., 272, 276, 277, 278, 291, 296, 298, 300, 303, 307, 309
 Kraus, E. J., 135
 Kraus, R. W., 61, 67
 Krebs, H. A., 355
 Krech, E., 123, 125, 288
 Krippahl, G., 315, 318
 Kroth, E. M., 77
 Krotkov, G., 125
 Kroumhout, R., 295
 Kruckeberg, A. R., 267
 Krupnikova, T. A., 328
 Kubowitz, F., 9, 19
 Kuipers, H., 83
 Kulescha, Z., 136, 145, 351
 Kuprevicz, V. F., 225, 239, 240, 242, 243
 Kuprevicz, W. T., 240
 Kusaka, T., 9
 Kuse, G., 166, 350
 Küster, E., 155
 Kuykendall, J. R., 36, 45, 48
 Kuzin, A. M., 323
 Kylin, A., 70
 Kylin, H., 94, 95

 L
 Lacombe, G., 4
 Laibach, F., 135, 364
 Laine, T., 348
 Lamb, R. C., 199
 Lambe, T. W., 80
 Lammerts, W. E., 186, 200, 201
 Lampitt, L. H., 19
 Lane, H. C., 292
 Lang, A., 196
 Lang, K. L., see Linderström-Lang, K.
 Lantrip, L. W., 328
 Lardy, H. A., 1, 9, 10, 12, 243
 Larrabee, C., 123, 128
 Larsen, H., 326, 327
 Larsen, P., 341, 343, 344, 347, 348, 351, 352, 353, 354, 355, 359, 360, 361, 369
 Lascelles, J., 327
 Laskaris, T., 137, 141
 Last, F. T., 230, 234
 Laties, G., 120, 121, 122, 123
 Laties, G. G., 118, 122, 123, 243
 Laughead, T., 313
 Lavin, G. I., 292, 293
 Laws, W. D., 84
 Lazarow, A., 121
 Le Compte, S. B., 87
 Ledesma, N., 197
 Lee, A. E., 149, 150
 Lee, S. H., 220
 Leech, W. D., 360
 Lees, H., 85
 Legge, J. W., 14, 94
 Lehle-Joerges, E., 359, 360
 Lehmann, H., 11
 Lehner, A., 76
 Lehniger, A. L., 1, 117, 127
 Leloir, L. F., 9, 11, 23
 Lemberg, R., 14, 94
 Leonard, C. D., 34, 50
 Leopold, A. C., 200, 344, 350, 364, 368, 369
 Lesley, J. W., 200, 201
 Leverington, K. C., 83
 Levi, I., 151
 Levin, I., 145, 155
 Levine, M., 133, 134, 135, 140, 143, 145, 146, 155
 Levitt, J., 186
 Levitt, L. S., 322
 Levring, T., 99, 103
 Lewin, J. C., 325
 Lewin, R. A., 325
 Lewis, C. M., 68, 96, 98, 105
 Lewis, F. J., 40
 Lewis, N. B., 94
 Alexander, K., 344, 345, 346
 Leyon, H., 284, 292
 Liebig, J., 251
 Limasset, P., 135
 Lind, E. F., 292
 Linderström-Lang, K., 14
 Lindner, R. C., 33
 Lindstrom, E. S., 327
 Link, A. D., 135, 141
 Link, G. K. K., 135, 136, 137, 141, 142, 144, 149, 150, 151, 348, 351
 Linschitz, H., 276
 Linser, H., 344, 345, 347, 361
 Lioret, C., 144
 Lipmann, F., 12, 13
 Lipmann, F. J., 191
 Litzemberger, S. C., 239
 Livingston, B. E., 251, 253
 Livingston, R., 272, 273, 274, 275, 276, 277, 278, 279, 280, 294, 306
 Locke, S. B., 135, 136, 137
 Loegering, W. Q., 236
 Longley, B. J., 154
 Loomis, W. D., 11
 Loomis, W. F., 191
 Loose, L., 62

Lorenz, O., 218
 Lotspeich, W. D., 10
 Lowe, J. S., 123, 127
 Luce, W. A., 33
 Luck, J. M., 367
 Luckwill, L. C., 220, 344,
 345, 346, 359
 Ludwig, C. A., 63
 Lulla, B. S., 24
 Lumry, R., 271-340; 93, 271,
 290, 298, 299, 300, 301, 303,
 305, 306, 308, 309, 311, 312,
 314, 344, 366, 367,
 Lund, J. W. G., 65
 Lundegårdh, H., 129
 Lundegårdh, H. G., 251
 Lüttgens, W., 309
 Lutz, J. M., 216, 218
 LuValle, J. E., 21
 Lwoff, A., 128
 Lynch, V., 284, 322
 Lynch, V. H., 59, 322, 323

M

Mabbitt, L. A., 76
 McCalla, T. M., 77, 78, 79
 McClendon, J. H., 117, 119,
 120, 123, 124, 125, 285, 297
 McClure, L. E., 286, 329
 McCulloch, L. P., 216
 McCulloch, L., 151, 152
 MacDaniels, L. H., 41, 44,
 189
 McDermott, J. J., 190
 Macdowall, F. D. H., 288,
 300
 McElroy, W. D., 1-30; 2, 11,
 14, 16, 18
 McEwen, D. M., 153
 McHenry, J. R., 77
 McIlvaine, H. R. C., 364
 Mack, G. L., 36, 45
 Mackie, J. R., 228, 236
 McKinney, H. H., 293
 MacLachlan, G. A., 293
 McLarty, H. R., 34
 McLik-Sarkisyan, S. S., 285
 McRae, D. H., 341, 342, 367,
 368
 MacVickar, R., 23
 Magness, J. R., 205
 Magnus, W., 155
 Magoon, C. A., 199
 Magrou, J., 148
 Mahler, H. R., 2, 14, 15, 18,
 19
 Mahlherbe, H. W., see Weil-
 Mahlherbe, H.
 Mains, E. B., 230, 231, 232,
 236
 Malan, P., 367
 Malan, P. F., 192
 Malmström, B. G., 5
 Maly, R., 285
 Mamul, Y. V., 323
 Mandels, G. R., 123, 128, 363

Mandle, R. J., 138, 139, 140
 Manigault, P., 148, 150
 Manil, G., 83
 Manil, P., 133, 145
 Mann, P. J., 356
 Mann, T., 14
 Manning, W. M., 99, 102, 105,
 109, 110, 293
 Manuel, M. E., 67
 Marbe, M., 134
 Marcus, A., 295
 Margolis, D., 46
 Margot, L., 174
 Marin, A. G., see Graf-
 Marin, A.
 Markley, K. S., 211
 Marsteller, R. L., 219
 Marth, P. C., 200, 220, 221
 Martin, J. P., 77
 Martin, W. P., 82, 84, 85,
 86, 87, 88, 89
 Maschek, F., 344, 345, 347,
 361
 Maschmann, E., 364
 Mason, H. L., 249-70; 250,
 251, 252, 255, 256, 258
 Massart, L., 13
 Massey, V., 3
 Massini, P., 303
 Mathews, M. B., 20
 Matudaira, T., 67
 Matus, J., 13
 Maurandi, V., 322
 Maxie, E. C., 213
 Mayberry, B. D., 37
 Meeuse, A. D. J., 186
 Mehler, A. H., 4, 10, 12, 302,
 303, 307
 Meier, R., 123, 128
 Melander, L. W., 228
 Melchers, G., 196, 268
 Menke, W., 99
 Merkel, J. R., 363
 Mesrobian, L., 134
 Metcalfe, T. P., 351, 352,
 355
 Metzner, H., 286
 Metzner, P., 174
 Meudt, W., 344, 345, 346,
 347
 Meyer, B. S., 183
 Meyer, H., 231
 Meyerhof, O., 11
 Michaelis, M., 151
 Michaels, A. S., 80
 Michlin, D. M., 352
 Mii, S., 15
 Mika, E., 364
 Milatz, J. M. W., 327
 Millbank, J. W., 325
 Miller, C. P., 190
 Miller, E. V., 205, 216, 218,
 219
 Miller, I., 90
 Miller, J. R., 274
 Miller, L. P., 190
 Millerd, A., 115, 120, 121,

122, 123, 215
 Milner, H. W., 60, 61, 62,
 63, 271, 328
 Minarik, C. E., 287
 Mirsky, A. E., 118, 119, 120,
 123, 125, 126
 Mishustin, E. N., 77
 Mitchell, H. L., 241
 Mitchell, J. E., 136
 Mitchell, J. W., 200, 220,
 221, 343
 Miyaji, T., 13
 Moewus, F., 343, 350, 365,
 366
 Moewus, L., 343, 350
 Molisch, H., 57, 185, 218
 Monroe, R. A., 14, 17
 Montelaro, J., 38, 45
 Monfort, C., 99, 102, 103
 Moon, H. H., 46
 Morel, G., 133, 135, 144, 147,
 237, 343
 Morita, S., 326
 Morris, L. L., 216
 Morrow, I. B., 364
 Moulton, J. E., 138, 348
 Mowry, D. T., 79, 81, 82, 85,
 86, 88, 89
 Moyses, A., 271, 326
 Mückschitz, G., 180
 Mueller-Thurgau, H., 200
 Muir, R. M., 341, 342, 351
 Müller, R., 344, 347, 361
 Mulliken, R. A., 272, 277
 Muncie, J. H., 134
 Munnecke, D. F., 228
 Müntzing, A., 264
 Murai, T., 272, 277
 Murneek, A. E., 184
 Myers, J., 56, 58, 59, 60, 61,
 62, 63, 64, 67, 69, 70, 324,
 325

N

Nagai, S., 291
 Najjar, V. A., 9, 10
 Nakamura, K., 343, 344, 345,
 346, 347, 351, 352, 353, 354,
 355
 Nakao, A., 323
 Nakaya, A., 13
 Nagy, R., 148, 149, 151
 Nason, A., 1-30; 14, 15, 16,
 18, 20, 21, 22, 23, 24, 301,
 325, 352
 Nason, H. K., 84, 85, 87
 Neish, A. C., 148, 149, 150
 Nelson, J. M., 14, 21
 Nelson, M. M., 241, 244
 Nelson, R., 218
 Nemec, B., 135
 Neurath, H., 3
 Newcomb, E. H., 123, 127,
 128
 Newcomer, E. H., 115, 116,
 120, 121

Newton, A. C., 346, 351
 Newton, J. W., 327
 Newton, M., 241
 Newton, R., 228, 239
 Nezhgovorova, L. A., 286
 Nicholas, D. J. D., 14, 16,
 18, 37
 Nickell, L. G., 145, 146
 Nickerson, J. C., 341, 344,
 355
 Nickerson, W. J., 363
 Nielsen, E. S., see Steemann
 Nielsen, E.
 Niethammer, A., 196
 Nieva, F. S., see Sanchez-
 Nieva, F.
 Nihel, T., 315, 325
 Nilova, V. P., 229
 Nitsch, J. P., 341, 343, 351,
 359
 Niwa, M., 16, 17
 Noack, K., 67, 70
 Nobécourt, P., 351
 Nocito, V., 355, 358
 Noll, A., 228
 Norman, A. G., 77
 Norris, P. S., 104, 106
 Northcote, D. H., 297
 Northen, H. T., 195

O

Oberle, G. D., 191, 198
 Ochoa, S., 4, 10, 12, 123, 301,
 322, 324
 Odland, M. L., 220
 Oebker, N., 220
 Ogata, E., 291
 Ogle, W. L., 37, 50
 Oki, K., 272, 277
 Okina, E. Z., 186, 187,
 195
 Oldewartel, H. A., 22, 23,
 24
 Oleson, J. J., 14, 17, 324
 Olivo, G. D., see Dávila
 Olivo, G.
 Olmstead, A. J., 214, 215, .
 219
 Olmsted, C. E., 196
 Olson, R. A., 316
 Ondratschek, K., 70
 Oppenheimer, J. R., 110
 Orelli, F. S., see Schneider-
 Orelli, F.
 Ormerod, J. G., 327
 Osborne, D. J., 349, 357
 Osipova, O. P., 286
 Osterlind, S., 60, 315
 Ott, P., 9
 Ottesen, M., 116
 Ouellet, C., 59
 Overbeek, J. van, 192, 195,
 342, 346, 351, 364
 Overstreet, R., 1
 Owen, O., 81
 Owings, J. F., 287

P

Pacheco, H., 344, 345
 Paech, K., 123, 125, 268
 Page, J. B., 76, 77, 78, 84
 Palade, G. E., 117, 121, 122,
 125, 283
 Paladini, A. C., 9, 11, 23
 Pallman, H., 13
 Palmiter, D. H., 35, 40, 41,
 44
 Pappenheimer, A. M., Jr.,
 16
 Pardee, A. B., 284
 Paris, C. H., 283, 284
 Pariser, R., 278
 Park, T., 257
 Parker, E. R., 32, 33, 44
 Parker, M. W., 197, 361
 Parker-Rhodes, A. F., 228,
 236
 Parris, G. K., 241
 Patel, M. K., 134
 Patterson, J. W., 121
 Paul, M. H., 12
 Pauling, L., 20, 362
 Payne, M. G., 364
 Pearce, G. W., 191, 198
 Pearsall, W. H., 59, 62, 66
 Pearson, J. A., 215
 Pechmann, E., 356
 Pentzer, W. T., 205-24
 Perkins, M. E., 13
 Perner, E. S., 124
 Peters, D. B., 83
 Peters, R. A., 10
 Peterson, W. H., 146, 149,
 151
 Peterson, W. J., 241
 Peturson, B., 235
 Pfeil, E., 148, 149, 150, 151,
 154
 Pflug, M., 293
 Phillips, P. H., 9, 24
 Philp, G. L., 186, 191
 Pickett, W. F., 43
 Pilet, P. E., 169, 174, 175,
 176, 241, 242, 364
 Pinkard, F. W., 78
 Pintner, I. J., 70, 71, 287
 Piper, S. H., 211
 Pirson, A., 67, 68, 70, 271
 Plank, J. E. van der, 217
 Plank, R., 217
 Plass, M., 12
 Platenius, H., 216, 218
 Platt, J. R., 272, 277
 Plaut, G. W. E., 12
 Pleshevskaya, E. G., 286
 Pohjakallio, O., 231
 Pohl, R., 195, 341, 350, 352,
 359
 Polglase, W. J., 344, 366,
 367
 Pollard, A., 211
 Pollock, B., 193, 194, 196
 Pollock, B. M., 123

Polosofsky, W., 289, 290
 Pongratz, A., 289, 290
 Popoff, A., 359
 Popp, H. W., 220, 364
 Porritt, S. W., 214
 Porter, J. W., 325
 Porter, R. H., 184
 Potter, G. F., 200
 Potter, N. A., 211
 Potter, V. R., 12
 Powell, G. H., 206, 210
 Power, F. B., 210, 211
 Pratt, L. C., 210
 Pratt, R., 62, 68, 233, 234,
 243
 Preer, J., 117
 Price, C. A., 119, 123
 Price, L., 326
 Price, W. C., 244
 Priestley, J. H., 188
 Prince, V. E., 36
 Pringsheim, E. G., 58, 59,
 69, 287, 327
 Pringsheim, O., 287
 Proebsting, E. L., 36
 Propst, L. M., 23, 24
 Provasoli, L., 55, 58, 59, 70,
 71, 287
 Pryor, D. E., 234
 Punnett, T., 297
 Purvis, E. R., 18
 Putnam, E. W., 322

Q

Quackenbush, F. W., 210,
 214
 Quastel, J. H., 75-92; 78, 79,
 80, 85, 351
 Quinlan-Watson, F., 352
 Quinlan-Watson, T. A. F.,
 24

R

Raadts, E., 350, 359
 Raalte, M. H. van, 367
 Rabideau, G. S., 106, 107
 Rabinowitch, E., 93, 271,
 273, 274, 275, 277, 278,
 279, 290, 295, 297, 300,
 306, 308, 309, 310, 311,
 314
 Racker, E., 20, 353
 Racusen, D. W., 323, 326
 Radspinner, W. A., 216
 Ragetti, H. W. J., 94, 292
 Rasch, E. M., 142
 Rasevskaja, V. F., 229
 Ratner, S., 355, 358
 Ray, J., 237
 Ready, D., 287
 Redemann, C. T., 346, 347,
 350, 360
 Redfield, A. C., 57, 60, 61,
 62, 63, 64, 65, 66
 Reed, G. B., 125

- Reed, H. S., 21, 23
 Reed, L. J., 305
 Rees, K. R., 4
 Regelmbal, L. O., 46
 Reid, J. J., 154
 Reid, M. R., 325
 Reinders-Gouwentak, C. A., 189
 Reinert, J., 164, 165, 168, 343, 361, 363
 Reio, L., 327
 Rennert, J., 276
 Rhodes, A., 220
 Rhodes, A. F. P., see Parker-Rhodes, A. F.
 Rhodin, J., 122
 Rhykerd, C. L., 287
 Rice, M. A., 228, 242
 Rice, W. H., 299, 309
 Rich, S., 147
 Richert, D. A., 14, 17
 Richter, A. von, 103
 Richter, A. A., 187, 188, 189
 Rideal, E. K., 366, 367, 368
 Rieske, J. S., 298, 300, 305, 306, 309
 Riker, A. J., 133, 134, 135, 136, 137, 138, 140, 141, 143, 144, 146, 147, 148, 149, 150, 151, 152, 154
 Riley, G. A., 70
 Riley, V., 313
 Rivera, V., 146
 Rjadnova, J. M., 197
 Roach, B. M. B., see Bristol-Roach, B. M.
 Roberts, E. A., 40, 41
 Roberts, F. M., 236
 Roberts, R. H., 145
 Rolertson, R. N., 1, 215
 Robinson, E., 127
 Robinson, W., 134, 140, 152
 Robinson, W. O., 258
 Roche, J., 4
 Rodenhiser, H. A., 227
 Rodhe, W., 56, 58, 63, 64, 65, 66, 67, 69
 Rodney, D. R., 41
 Rodrigo, F. A., 290
 Roewer, F., 355
 Rohrbaugh, P. W., 42
 Rohweder, H., 264
 Rose, D. H., 218
 Rosenberg, A. J., 303
 Rosenberg, J. L., 59, 315
 Rothstein, A., 123, 128
 Roux, E., 286, 293
 Ruehrwein, R. A., 89
 Ruge, U., 191
 Ruhemann, S., 348
 Rune, O., 258
 Russel, M. B., 77
 Ryan, R. W., 63
 Ryan, V. A., 274, 275, 276, 277, 278, 279, 280, 306
 Rybak, B., 134
 Ryther, J. H., 62
- S
- Sadasivan, V., 3
 Sagromsky, H., 99
 Sainsbury, G. F., 208, 209
 Salles, J. B. V., 12
 Salmon, E. S., 227, 236
 Salomon, K., 292
 Saltman, P., 122, 123
 Samish, R. M., 183-204; 186, 191, 192, 195, 197, 198
 Samuels, C. D., 42
 Sanchez-Nieva, F., 343, 347, 351, 352, 353, 354, 355, 360
 Sancier, K. M., 272, 273, 274, 275, 277, 292
 Sando, C. E., 211
 Santiago de Vázquez, E., 342
 Sapozhnikov, D. I., 290
 Sargent, M. C., 98, 107, 328
 Satarova, N. A., 187
 Sato, R., 16, 17
 Savile, D. B. O., 228
 Sax, K., 264
 Saz, A., 24
 Schachman, H. K., 284
 Schales, O., 12
 Schales, S. S., 12
 Schaller, F. W., 76
 Schatz, A., 55, 58, 71
 Schenck, G. O., 279, 282, 322
 Schenck, R., 322
 Schenk, W., 293
 Schieler, L., 286, 329
 Schlitt, L., 364
 Schmidt, E. W., 241
 Schmidt, G., 99, 103
 Schneider, C. L., 367
 Schneider-Orelli, F., 200
 Schneider, W. C., 115, 117, 119, 120, 121, 126, 127, 129
 Schocken, V., 366
 Schomer, H. A., 216, 221
 Schou, L., 59
 Schrank, A. R., 163, 170, 171, 172, 361, 363
 Schreiber, E., 63
 Schröder, W., 315, 318
 Schuertz, F. A., 125
 Schuler, J. F., 324
 Schuringa, G. J., 361
 Schwarze, P., 289
 Schwarzenbach, G., 59
 Schwarzenbach, G. M., 12
 Sweet, R. S., 12
 Schwert, F. A., 283, 296
 Scott, D. H., 37
 Scott, E. S., 287
 Scott, F. M., 293
 Scott, G. T., 58, 65, 67, 68, 69
 Scott, L. E., 37
 Segretain, G., 139
 Seifert, E., 118, 123
 Seitz, F., 294
 Sell, H. M., 190, 200, 346, 347, 350, 360, 370
- Selsam, M. E., 67, 68
 Sempio, C., 231, 232, 233, 234, 235, 236, 240, 243
 Sen, S., 350
 Sexton, W. A., 220, 351, 352, 355
 Seybold, A., 103
 Shalucha, B., 346, 359
 Shapiro, B., 10, 12
 Shapiro, S. A., see Avineri-Shapiro, S.
 Sharma, R. C., 220
 Sharp, E. L., 227
 Shaulis, N. J., 36, 45
 Shaw, M., 293
 Sheline, R. K., 278
 Shepardson, E. S., 46
 Sherwood, L. V., 85, 88, 89
 Shi, R. B., 24
 Shiau, Y., 282, 306
 Shibata, K., 315, 325
 Siegel, S. M., 344, 360, 365, 367, 368, 369, 370
 Shimotomai, N., 264
 Shlyk, A. A., 287, 293
 Short, W. A., 325
 Showacre, J. L., 289
 Shreve, F., 251, 253
 Shultz, E. S., 220
 Shutak, V. G., 210
 Sibley, P. M., 23, 24
 Siegelman, H. W., 208, 209
 Silber, C., 87
 Silberschmidt, K., 192, 193
 Silberstein, O., 38, 48
 Simonis, W., 326
 Singalovsky, Z., 228, 241, 242
 Sisakyan, N. M., 285, 286
 Sivadjian, J., 293
 Sivko, T. N., 327
 Sjöstrand, F. S., 122, 283, 285
 Skipper, H. E., 325
 Skodvin, K., 35
 Skoog, F., 22, 58, 64, 66, 67, 69, 145, 192, 242, 341, 342, 350, 351, 352, 355, 359, 361, 363, 364, 365, 367
 Skwarra, H., 343, 350
 Slankis, V., 241
 Slater, C. S., 84
 Slater, E. C., 19
 Slein, M. W., 9
 Smit, A. J. H., see Haagen-Smit, A. J.
 Smith, A. J. M., 218
 Smith, A. M., 76
 Smith, C. O., 140
 Smith, C. T., 37
 Smith, E., 1, 3, 4, 6
 Smith, E. F., 133, 134, 140, 151, 152, 155
 Smith, E. L., 14, 344, 366, 367
 Smith, F. G., 227
 Smith, G. F., 344, 345, 347, 348, 349, 350, 356, 357, 360
 Smith, H. C., 226, 228, 229,

- 230, 239
 Smith, J. A. B., 211
 Smith, J. H. C., 290, 291
 Smith, L., 134
 Smith, O., 220
 Smith, O. F., 228
 Smith, P. G., 45
 Smith, R. D., 38, 48
 Smith, W. H., 217
 Smitz, B. L., 241
 Smock, R. M., 44, 205, 207,
 208, 209, 214, 220
 Smolin, A. A., 201
 Söding, H., 341, 343, 350,
 359
 Soeding, H., 188
 Solacolu, T., 147
 Sorokin, C., 324
 Sorokin, H., 124
 Southwick, F. W., 208, 209,
 220
 Southwick, L., 37
 Southwick, M. D., 40, 41
 Southwick, R. W., 33
 Sparrow, A. H., 364
 Specht, A. W., 293
 Speck, J. F., 11, 12
 Spencer, L. G., 220
 Spiegel-Adolf, M., 195
 Spiegel, E., 195
 Spiegel, P., 193
 Spikes, J. D., 271-340; 93,
 271, 290, 298, 299, 300,
 301, 303, 305, 306, 308,
 309, 311, 312, 314
 Spoehr, H. A., 60, 61, 62, 63,
 328
 Spoerl, E., 134, 152
 Sporer, A. H., 292
 Springer, U., 76
 Spruit, C. J. P., 325
 Stacey, M., 78
 Stadman, E. R., 10, 12
 Stafford, H. A., 117, 120, 121,
 123, 124, 127, 128
 Stanier, R. Y., 284
 Stanton, E. N., 187
 Stanton, T. R., 293
 Stapp, C., 133, 144, 148, 149,
 150, 151, 154
 Stauffer, J. F., 119
 Stebbins, G. L., Jr., 264
 Steeman Nielsen, E., 59, 60,
 313, 315
 Stegmann, G., 70
 Stehsel, M. L., 360
 Steinacker, M. L., 36, 183,
 184
 Steinberg, R. A., 24
 Steinberger, R., 4
 Steiner, M., 357
 Steinmann, E., 283, 284, 285
 Stephens, D. G., 4
 Stepka, W., 59
 Stern, A., 87
 Stern, H., 118, 119, 120, 123,
 125, 126
 Stern, J. R., 10, 12
 Steward, F. C., 193
 Stewart, I., 34, 50
 Stewart, W. S., 219, 220, 349
 Stickland, L. H., 9
 Stift, A., 148, 149
 Stiles, W., 184
 Stock, C. C., 4, 13
 Stocking, C. R., 115, 119,
 123, 124, 125, 283, 284, 285,
 287, 288
 Stoddard, E. M., 147
 Stone, G. M., 228
 Stotz, E., 12
 Stoughton, R. H., 185
 Stout, P. R., 249-70
 Stowe, B., 344, 345, 346, 347,
 350, 356, 369
 Straib, W., 229, 236
 Strain, H. H., 93, 95, 102,
 105, 110, 292, 295
 Straszewska, Z., 145
 Street, H. E., 123, 127
 Strehler, B. L., 11, 307, 312,
 326
 Strell, M., 272, 277
 Strohmer, F., 148, 149
 Strutz, I., 351
 Stumpf, P. K., 11, 24, 123,
 127, 358
 Stupp, R., 272, 277
 Stutz, R. E., 347
 Subbarow, Y., 18
 Subrahmanyam, V., 12
 Suda, M., 13
 Sukhornkov, K., 195
 Sunday, M. B., 216
 Suzuki, K., 326
 Svedberg, T., 94
 Sverdrup, H. W., 62
 Swaby, R. J., 78
 Swanson, C. L. W., 83, 88
 Swanson, M. A., 124
 Swarbrick, T., 186
 Swift, H., 125, 142
 Swingle, S. M., 94
 Syrett, P. J., 56, 61, 324
 Szasz, J., 87
 Szorenyi, E. T., 11
- T
- Tabachnick, M., 327
 Takashima, S., 289, 290, 326
 Takeda, H., 272, 277
 Tambiah, M. S., 344, 345
 Tamiya, H., 310, 311, 315,
 325
 Tanada, T., 58, 99, 293
 Tang, Y. W., 343, 344, 365,
 369, 371, 372
 Tapke, V. F., 229, 234
 Tarpley, W. B., 2, 15, 19, 21
 Tarver, H., 327
 Tauber, H., 13
 Taylor, G. S., 82, 84, 86, 87
 Taylor, H. A., 200
 Taylor, K. N., 341, 344, 355
 Taylor, T. I., 214
 Taylor, W. P., 251, 252, 256
 Tchakirian, A., 148
 Teas, H. J., 346, 351
 Tegethoff, B., 359, 360
 Templeman, W. G., 220
 Teresi, J. D., 367
 Terpstra, W., 344, 345
 Terrell, A. J., 20, 21
 Teubner, F. G., 344, 345,
 346, 347, 360
 Thatcher, F. S., 236, 239,
 241
 Theis, T. N., 138
 Thimann, K. V., 119, 123,
 190, 194, 341, 342, 343,
 344, 345, 346, 347, 349,
 350, 351, 352, 355, 356,
 357, 359, 360, 363, 364,
 365, 366, 367, 368, 369
 Thom, L. A. C., see Chan-
 Thom, L. A.
 Thomas, D. S., 21
 Thomas, J. B., 283, 284,
 293, 313, 327
 Thomas, J. E., 137
 Thomas, M. D., 39
 Thompson, A. R., 210, 211,
 214
 Thompson, H. C., 196
 Thompson, H. E., 287
 Thompson, L., 278
 Thompson, T. G., 70
 Thompson, W. L., 34
 Thornton, N. C., 190, 192
 Thresh, R., 344, 345, 347
 Thung, T. H., 134
 Thurgau, H. M., see
 Mueller-Thurgau, H.
 Tischler, G., 264
 Tisellius, A., 94
 Tixier, R., 95
 Todt, F., 316
 Toivonen, T., 348
 Tolbert, N. E., 59, 123, 288,
 324
 Tolhurst, J., 88
 Tombsi, L., 328
 Tomihata, K., 13
 Tomimaga, Y., 292
 Tonomura, K., 272, 277
 Toshevikova, A. C., 190
 Totter, J. R., 14, 17, 326
 Townsend, C. O., 133, 140,
 151
 Traverso, A. A. B., see
 Buzzati-Traverso, A. A.
 Trelease, H. M., 230, 231,
 232
 Trelease, S. F., 57, 67, 68,
 230, 231, 232
 Tret'yak, N. K., 287
 Trucco, R. E., 9, 23
 Truog, E., 77
 Tryon, C. A., 328
 Tsai, B. K. W., 36

Tsao, T., 150
 Tsui, C., 22, 192, 242, 351
 Tsukamoto, A., 327
 Tufts, W. P., 183, 185, 191,
 197
 Tukey, H. B., 47, 200, 287
 Tukey, L. D., 200
 Turesson, G., 250, 258, 259
 Turian, G., 174
 Turk, A., 214
 Turner, J. F., 215
 Turner, J. S., 93
 Turrell, F. M., 39, 41, 42

U

Uber, F. M., 364
 Ueda, M., 271, 277
 Umbreit, W. W., 119
 Urech, C., 364
 Uri, N., 276
 Ursprung, A., 40

V

Vallance, L. G., 78, 83
 Van Bavel, C. H. M., 76, 84
 Vandemark, J. S., 220
 Vandendriessche, L., 13
 van den Honert, T. H., see
 Honert, T. H. van den
 van der Plank, J. E., see
 Plank, J. E. van der
 Van der Veen, R., 196
 Van Doren, A., 207
 Van Fleet, D. C., 115
 Van Geluwe, J., 37, 44
 Van Genderen, H., 326
 Van Lanen, J. M., 154
 Van Niel, C. B., 325, 327
 Van Norman, R. W., 323
 van Overbeek, J., see
 Overbeek, J. van
 van Raalte, M. H., see
 Raalte, M. H. van
 Vardar, Y., 165, 176, 177,
 350
 Vatter, A. E., 295
 Vaughn, J. R., 370
 Vázquez, E. S. de, see
 Santiago de Vázquez, E.
 Vegls, A., 187, 197
 Veldstra, H., 195, 341, 349,
 352, 355, 357, 364, 365,
 367, 368
 Velick, S. F., 134
 Veltkamp, G. W., 316
 Vennesland, B., 5, 12
 Venogradov, N. P., 268
 Venturelli, G., 146
 Verduin, J., 328
 Vereshchinskii, I. V., 298
 Verkaaik, B., 167
 Vernon, L. P., 302, 303, 323,
 326
 Villiers, D. J. R. de, 217
 Villiers, G. D. B. de, 198, 199

Vinbert, C. G., 327
 Vinogradov, A. P., 301, 324
 Virtanen, A. I., 348
 Vishniac, W., 123, 124, 290,
 301, 324
 Vittorio, P. V., 125
 Vitlos, A. J., 344, 345, 346,
 347
 Voinovskaya, K. K., 277, 296
 Volk, G. W., 84, 88
 von Denffer, D., see Denffer,
 D. von
 von Euler, H., see Euler,
 H. von
 von Guttenberg, H., see
 Guttenberg, H. von
 Von Korff, R. W., 10
 Von Oppenfeld, H., 46
 von Richter, A., see
 Richter, A. von
 von Witsch, H., see Witsch,
 H. von
 Voskresenskaya, N. P., 323
 Voss, H., 357, 359, 360

W

Wagenknecht, A. C., 327, 344,
 369, 371, 372
 Waggoner, P. E., 145, 146,
 364
 Waksman, S. A., 76
 Walkden, H., 134, 140, 152
 Walker, A. D., 369
 Walker, J. B., 324, 325
 Walker, R. B., 266
 Walker, T. J., 65
 Wall, J. S., 327
 Wallace, A., 36, 45, 48
 Walls, L. P., 211
 Wang, T. M., 228
 Wang, T. P., 11
 Wann, F. B., 67, 69
 Warburg, O., 8, 9, 24, 60,
 309, 314, 315, 316, 318, 321
 Ward, D. W., 69
 Ward, M., 227
 Wardlaw, C. W., 216
 Waring, J. H., 37
 Waring, W. S., 21, 22
 Warmke, G. L., 353
 Warmke, H. E., 353
 Warner, T., 174
 Warrington, P. M., 303
 Wassink, E. C., 93, 99, 109,
 110, 111, 292, 299
 Waterbury, E., 185
 Waterhouse, W. L., 228
 Watson, F. Q., see Quinlan-
 Watson, F.
 Watson, I. A., 236
 Watson, T. A. F. Q., see
 Quinlan-Watson, T. A. F.
 Watson, W. F., 275, 296
 Watts, G. W., 134
 Waygood, E. R., 119, 123,
 128, 289
 Wayrynen, R., 301, 303, 314
 Webb, E. C., 14
 Weber, F., 13, 185, 191
 Weber, R., 116
 Weber, R. P., 145, 344, 349,
 351, 352, 354, 355, 364,
 365
 Webley, D. M., 78, 79, 80
 Webster, G. C., 121, 122,
 123, 317, 325
 Weeks, L. E., 89
 Weier, T. E., 115, 119, 123,
 124, 125, 283, 284, 285, 287
 Weigl, J. W., 272, 277, 278,
 303
 Weil, S., 272, 273, 277
 Weil-Mahlherbe, H., 18
 Weinberger, D., 325
 Weinberger, J. H., 36, 186,
 191, 199, 201
 Weinberger, P., 289
 Weinfurter, F., 177
 Weintraub, R., 341, 344, 355
 Weintraub, R. L., 360, 365,
 369, 370, 371
 Weiser, H., 221
 Weissberger, A., 21
 Weissweiler, A., 103
 Weldon, G. P., 191, 197, 198
 Wellensiek, S. J., 228
 Weller, A., 278
 Weller, L. H., 360
 Wellman, H., 243
 Wells, A. F., 20
 Went, F. W., 45, 196, 261,
 293, 342, 343, 350, 355,
 356, 357, 359, 360
 Werkman, C. H., 21, 22
 Werle, E., 355, 356
 Wessel, G., 325
 Wessels, J. S. C., 298, 300,
 301, 305, 309
 West, C., 206, 208, 209, 210,
 213, 216, 217, 218
 West, W., 293
 Wester, R. E., 87
 Westerfield, W. W., 14, 17
 Westheimer, F. H., 4
 Wetmore, R. H., 343, 350,
 351
 Whaley, W. G., 150
 Whatley, F. R., 123, 303, 309
 Wheatley, J. R., 37, 50
 Whisenand, E., 65
 Whitaker, T. W., 293
 White, D., 200
 White, E. P., 350
 White, J. W., Jr., 210
 White, P. R., 133, 136, 144,
 150, 153
 White, R. O., 348
 Whitehouse, W. E., 186
 Whitney, I. B., 14, 17
 Whittingham, C. P., 93, 271,
 309, 315, 317, 325
 Whyte, R. O., 184, 196
 Wiant, J. S., 216

Wickman, F. E., 323
 Wilcox, F., 357
 Wilcox, H. W., 135, 141, 144, 149
 Wilcox, M. S., 218
 Wilderman, S. G., 292
 Wildman, S. G., 118, 123, 124, 125, 149, 157, 285, 286, 288, 302, 342, 343, 347, 351, 355, 356, 359, 360, 366, 367
 Wilhelmi, G., 68
 Wilkin, G. D., 369
 Willard, C. J., 76
 Williams, E. F., 211
 Williams, J. H., 14, 17, 324
 Williams, L. G., 350
 Williams, R. J. P., 5
 Williamson, C. E., 242
 Wilson, A. R., 133, 134
 Wilson, A. T., 303, 304
 Wilson, P. W., 327
 Wilson, T., 70
 Wiltshire, G. H., 358
 Winder, F. G., 369
 Winkelpeck, R. L., 199
 Withrow, R. B., 326
 Witman, E. D., 221

Witsch, H. von, 58, 70
 Wittwer, S. H., 37, 38, 47, 48, 220, 346, 347, 350, 360
 Wohl, K., 310, 318
 Wolf, F. T., 241, 344, 345, 351, 355
 Wolken, J. J., 125, 283, 296
 Wood, J. G., 23, 24
 Wood, W. M. L., 179
 Woodbridge, C. G., 34
 Woods, M. W., 128, 289
 Woodward, F. N., 328
 Woodward, R. C., 228
 Woolley, D. W., 342
 Woolley, I. T., 325
 Wortley, W. R. S., 230
 Wostilait, W. D., 20, 21
 Wright, B. E., 325
 Wright, R. C., 205
 Wu, Y. S., 232
 Würzler, W., 174
 Wurmsier, R., 103
 Wyman, O. L., 37

Y

Yakovleva, N. N., 240, 242
 Yamaki, T., 343, 344, 345,

346, 347, 351, 352, 353, 354, 355
 Yamamoto, K., 272, 277
 Yarnell, S. H., 199
 Yarwood, C. E., 225, 229, 231, 232, 236, 237, 239, 241, 244
 Yemm, E. W., 286
 Yocum, C. S., 97, 104, 108, 109, 110, 327
 Yoder, R., 79
 Young, R. E., 214, 215, 219
 Young, V. K., 109, 293
 Yudkin, W. H., 14

Z

Zamecnik, P. C., 13
 Zechmeister, L., 93
 Ziegler, H., 167, 168, 173, 289
 Ziese, W., 151
 Zill, L. P., 324
 Zimmerman, P. W., 352, 357
 Zink, F. W., 45
 Zirm, K. L., 289, 290
 ZoBell, C. E., 62, 63
 Zollikofer, C., 189
 Zweifler, A. G., 322

SUBJECT INDEX

A

- Absorption spectrum
 - of plant pigments, 94
 - algae and, 96-106
 - chart of, 94
 - comparison with chlorophyll, 95
- Acetate activating enzyme, 123
- Acid
 - accumulation during dormancy, 190
 - ascorbic, see Ascorbic acid
 - and auxin destruction, 360
 - fatty
 - apple scald and, 212
 - oxidation of, 15, 123
 - organic, fruit storage and, 218
 - postharvest changes, 205
- Activators, chlorophyll and, 273-74
- Adenosinetriphosphate
 - as auxin, 341-72
- Age, disease and, 205, 208, 213
- Agriculture
 - soil conditioners, 75-90
- Aldehyde, auxin and, 352-54
- Aldolase, 123
- Algae
 - chloroplasts in, structure of, 283
 - fluorescence and, 294
 - as food, 328-29
 - metabolism in photosynthesis, 324-26
 - nutrition of
 - see Phytoplankton, mineral nutrition of
 - photosynthesis in, 95
 - blue-green algae, 105
 - brown algae, 99-102
 - chart for Ulva, 97
 - floridorubin and, 95
 - fucosane and, 95
 - green algae, 96-98
 - orange algae, 98
 - phycoerythrins, 95, 104
 - red algae, 102-5
- Alginate, soil productivity and, 81-82
- Alginic acid, soil aeration and, 78
- Aluminum, as soil conditioner, 84
- Amine, auxin and, 355-56
- Amino acids
 - and auxin formation, 351-52
 - see also Protein
- Anaerobiosis
 - Hill reaction and, 311
 - in rest breaking, 188, 191, 195
 - resistance to fungus and, 235
- Anthocyanins, photosynthesis and, 95
- Apple scald, 206-13
 - causes of, 206-8, 211, 213
 - characteristics of, 206
 - control of, 208, 212-13, 221
 - development of, time factor in, 208-9
 - growth substances and, 221
 - harvest time and, 211
 - present knowledge of, 212-13
 - skin composition and, 211-12
 - storage and, 206-7, 212
 - volatiles and, 209-10
 - controls on, 209
 - identification of, 210-11
- Apple skin, composition of, scald and, 211-12
- Apple spotting, 213
- Artifacts, in centrifugation, 119-20
- Ascorbic acid
 - catalytic activity of, copper and, 19-20
 - in chloroplasts, 288
 - postharvest change, 205, 218
- Ascorbic acid oxidase, 123
 - crown gall and, 151
- Auxin
 - antiauxin, 341-42
 - bound, 342
 - as storage reserve, 359-60
 - chemical structure, 341
 - crown gall and, 144-45
 - destruction, 360-72
 - acids and, 360
 - adsorption, 360
 - binding and, 365-69
 - decomposition, 360
 - indoleacetic acid oxidase and, 369-72
 - ionization and, 364-65
 - peroxides and, 360
 - radiation, ultraviolet, 363-64
 - radiation, visible and, 361-63
 - riboflavin and, 363
 - formation of, 351-60
 - aldehyde and, 352-54
 - amine and, 355-56
 - amino acid and, 351-52
 - esters and, 357
 - inhibitors and, 359
 - keto-acid and, 354-55
 - nitrile and, 356-57
 - precursors of, 358
 - tissues and, 351
 - free, 342
 - fungus disease and changes in, 241-42
 - geotropism and, 174, 176, 178-79
 - identification of, 341-50
 - acid-alkali test, 343
 - in biological extracts, 344
 - color test, 343
 - extraction method, 347
 - migration analysis, 344
 - indoleacetic acid, 341-72
 - as inhibitor, 366
 - nastic movements and, 163
 - occurrence of, 341-50
 - compound lability and, 347
 - concentration, 347
 - phototropism and, 164-66, 169-70
 - precursor, 342, 358
 - production, 342
 - rest-breaking, 188, 191-93
 - see also Auxin-inhibitor mechanism
- Auxin-inhibitor
 - mechanism of, 192-94
 - growth, 193
 - respiration, 193-94
 - rest-breaking, 192-95

B

- Bacteria
 - photosynthesis in, 93, 96, 326-27
 - soil aggregation and, 77
- Bacteriochlorophyll
 - energy transfer in, 296
 - reduction of, 277
- Bacteriopheophytin, reduction of, 277-78
- Blade
 - role of
 - in geotropism, 176
 - in phototropism, 166
- Borax
 - as foliar nutrient, 34
 - fungus disease and, 231
- Boron
 - algal nutritive requirements, 57

- as foliar nutrient, plant response to, 34
- Buds**
 - growth interruption of, 185
 - rest in
 - breaking of, 187
 - requirements of, 186
 - temperature effect, 186, 187
- Butyryl coenzyme A dehydrogenase, 15
- C**
- Cadmium, fungus disease and, 231
- Calcium, algal nutritive requirements, 57, 67-68
- Cambium, after dormancy, 188, 192
- Carbohydrate**
 - fungus disease and, 230-32, 242-43
 - metabolism
 - crown gall and, 148-49
 - enzymes, metallic activation, chart of, 9
 - inhibitors, 10
 - magnesium and, 8
 - metal ion catalysis and, 8-10
 - transformation, postharvest, 205
- Carbon**
 - algal nutritive requirements, 57, 59-61
- Carbon dioxide**
 - P-glycerate fixing, 123
 - photosynthesis and fixation of, 322-24
 - quantum requirements, 315-16
 - role of
 - as auxin, 181
 - in therrmonasty, 181
 - in soil, 85
- Carotene**
 - chlorophyll association of, 296
 - as a light filter, 164-65
 - photochemistry of, 271-82
 - structure and theory, 271-72
 - in vitro reactions of, 272-82
 - and phototropism, 164-65
- Carotenoids**
 - absorption spectrum, 94-96
 - changes from fungus disease, 240-41
 - energy transfer in photosynthesis and, 293
 - fucoxanthin, 95, 99
 - photosynthesis and, 93-94, 99
 - phototropism and, 164-65
 - storage and, 218
- Catalase, 123
- in chloroplasts, 288-89
- crown gall and, 151
- Catalysts**
 - metallo-proteins as, 2-8
- Cell nucleus**
 - enymatic studies and, 116, 117, 125-27
- Cellulose**
 - in humus, 76
 - products, soil aeration and, 80
- Cell wall**
 - enzymatic studies and, 116
- Chelate structures, 6-8
- Chelating agents, 55, 59
- Chilling**
 - dormancy and, 196
 - see also Rest
 - postharvest injury by, 216-19
 - susceptibility to, 216-17
 - symptoms of, 216
 - temperature and, 216-18
 - time factor in, 217
 - respiration and, 215
- Chitin**
 - role of, in phototropism, 167, 169
- Chlorella**
 - absorption spectrum, 96
 - as food, 328-39
 - nutritive requirements of, 56, 59-65, 67-70
- Chloroform**
 - fungus disease and, 236
- Chlorophyll**
 - biosynthesis of, 291-93
 - crystallization of, 296-97
 - photochemistry of, 271-82
 - energy conversion in, 273, 296
 - fluorescence and, 272-74, 295-97
 - Hill reaction and, 298
 - oxygen and, 275-78
 - peroxides and, 276
 - quinoid substances and, 276
 - reducing agents and, 277
 - Schenck general reaction scheme, 279-82
 - structure and theory, 271-72
 - in vitro reactions of, 272-82
 - powdery mildew, effect of on, 240
 - protein associations of, 289-91
- Chloroplasts**
 - composition of, 285-87
 - ascorbic acid, 288
 - chromatophores, 287
 - cytochromes, 287
 - enzymes, 287-89
 - nucleic acids, 286-87
 - proteins, 285-86, 289-91
 - enzymatic studies and, 116, 124-25
- Hill reaction and photochemical properties of, 299
- quantum requirements, 314-15
- rate of, 290-91
- water splitting and, 297
- plant viruses and, 292
- structure of, 282-85
- in algae, 283
- in higher plants, 284-85
- methods of investigation, 283
- Chromatic adaptation**, 107-8
- de-adaptation, 108
- "functional", 108
- Chromatography**
 - in auxin identification, 344-46
 - chart of, 345
 - fungus disease and, 229
 - volatile emanations and, 214
- Chromatophores**
 - in chloroplasts, 287
- Chromosomes**, 186
- Citric acid cycle**
 - enzyme activation in, 10-13
 - chart of, 12
- Citric oxidase, 123
- Cobalt**
 - algal nutritive requirements, 57
- Coenzyme A, 123
- Coleoptiles**, *Avena*
 - geotropism in, 172
 - phototropism in, 164-65, 170-71
- Copper**
 - algal nutritive requirements, 57
 - enzymes and, 19-21
 - as foliar nutrient, plant response to, 33
- Copper enzymes**, 19-21
- Crop response to soil conditioning**, 86
- Crown gall**
 - bacterium virulence and, 153-56
 - biochemistry of, 148-51
 - carbohydrate metabolism, 148-49
 - enzymology, 151
 - nitrogen changes, 149-50
 - respiration, 150-51
 - development of, 143-48
 - auxin and, 144-45
 - host role, 143-44
 - inhibitory substances, 147-48
 - stimulatory substances, 146-47

inception period, 137-43
 bacteria and, 137-40
 biochemistry of, 142
 growth substance and, 141-42
 temperature and, 137-40
 time factor, 138-40
 wound role in, 140-41
 problem of, 133-37
 recovery of tumor cells, 156-57
 secondary tumors and, 151-53
 tumor morphology and, 153-56
 Cutin, apple scald and, 211
 Cyanide insensitive oxidase, 123
 Cyanide, rest-breaking properties, 191
 Cytochrome oxidase, 118, 122, 123
 Cytochromes
 in chloroplasts, 287
 in Hill reaction, 302-3
 reduction of, 18-19
 Cytology
 enzymatic study and, 116-17
 chemical identification, 117-18
 particle separation, 116
 Cytoplasm, in dormancy, 195

D

Deciduous trees, dormancy and, 183-84
 Diageotropism, 178-79
 Diatom
 light spectra, 98
 mineral nutritive requirements, 58, 63, 67, 69-70
 photosynthesis, 99
 2,4-Dichlorophenoxyacetic acid
 as auxin, 341-72
 fruit storage and, 219
 ripening and, 221
 vegetable storage and, 220
 Dinitrophenol, rest-breaking properties, 191
 2,4-Dinitrophenol, ripening and, 215
 Dinoflagellates
 nitrogen requirements of, 64
 Diphosphopyridine nucleotide (DPNH)-cytochrome-c reductase, 18-19
 Diphosphopyridine nucleotide glyceraldehyde, 123
 Disease, functional
 volatile emanations and, 205-14
 see also Apple scald;

Apple spotting; Chilling;
 Pear scald; and
 Respiration
 Disease, fungus
 see Fungus diseases
 Dormancy
 auxins and, 192
 in buds, 185
 causes of, 183
 chilling requirement, 196
 definition of, 183
 horticultural aspects, 197-200
 recuperation during, 201
 in seedlings, 185
 in woody plants, 183-201
 see also Rest

E

Ecology, see Plant geography
 Ecospecies, 262
 Ecotypes, 262
 Electrical activity
 in geotropism, 172
 in phototropism, 169, 170
 Electronic energy
 transfer of, 294
 see also Fluorescence
 Energy
 conversion of, 273
 photosynthesis and
 migration of, 393-97
 quantum requirements, 313-22
 transfer mechanisms in
 photosynthesis, 293-97
 Enolase, 123
 Enzyme
 action
 and dormancy, 195
 fungus disease and, 240
 in chloroplasts, 287-89
 condensing, 123
 constitution
 metal deficiencies and, 21-25
 crown gall and, 151
 identification of, methods used, 118-19
 localization
 acetate activating enzyme, 123
 aldolase, 123
 ascorbic oxidase, 123
 carbon dioxide fixing into P-glycerate, 123
 catalase, 123
 centrifugation, 119-20
 chemical identification, 117-18
 citric oxidase, 123
 coenzyme A, 123
 condensing enzyme, 123
 cyanide insensitive oxidase, 123
 cytochrome-f, 123

cytochrome oxidase, 122
 cytological studies, 115, 116-17
 diphosphopyridine nucleotide glyceraldehyde, 123
 enolase, 123
 enzymatic identification, 118-19
 fatty acid oxidation, 123
 fumarase, 123
 glutamine synthesis, 123
 glutathione synthesis, 123
 glycolic oxidase, 123
 hexokinase, 122
 in higher plants, 115-29
 Hill reaction-photo-reduction coupled enzyme, 123
 intracellular, 115
 isomerase, 123
 α -ketoglutaric oxidase, 123
 lecithinase, 123
 malic oxidase, 123
 methods of study, 115-16, 128-29
 microsomes, 127
 mitochondrial enzymes, 120-24
 mutants and, 128-29
 nuclear enzymes, 125-27
 oxalacetic acid, 123
 oxidative phosphorylation, 123
 pectinesterase, 123
 phosphatase, 123
 phosphorylase, 123
 plastid enzymes, 124-25
 polyphenol oxidase, 123
 pyruvate, 123
 pyruvate kinase, 123
 succinic oxidase, 123
 sucrose phosphorylase, 123
 surface enzymes, 127-28
 unknown pigment, 123
 references to, chart of, 123
 Enzyme systems
 copper and, 19-21
 metal deficiencies of, 21-25
 metal requirements of, 8-15
 carbohydrate metabolism and, 8-10
 citric acid cycle and, 10-13
 multiple activation, 13
 specific components, chart of, 13, 14, 15
 metallo-proteins, 2-8
 micronutrient elements in action of, 1-25
 metallo-flavoproteins, 15-19
 metallo-proteins, 2-8
 Epsom salts

as foliar nutrient, 37-38, 44
 Esters, auxin and, 357
 Ethylene
 and fruit disease, 214
 respiration and, 214-15
 Ethylindoleacetate, as auxin,
 341-72
 Evergreens, dormancy and,
 183-84

F

Fertilizers
 soil conditioners and,
 88-89
 Flavones, photosynthesis
 and, 95
 Floridourubin, 95
 Flowers, thermonastic
 reactions of, 179-81
 Fluorescence
 of chlorophyll
 algae and, 294
 in Hill reaction, 306
 hydrogen and, 278
 magnesium and, 272-76,
 278
 oxygen and, 275-78
 phycocyanin and, 294
 protein and, 294
 protein-chlorophyll
 complexes and, 290
 reducing agents and, 278
 "sensitized", 294-95
 water and, 295
 in nonchlorophyllous
 pigments, 109-10
 energy transfer from, 110
 role of chlorophyll in, 109
 Food, algae as, 328-29
 Fruit
 drop, control of, 220
 physiology of
 postharvest, 205-21
 storage, 217
 Fucosan, 95
 Fucoxanthin
 absorption spectrum of, 95
 photosynthesis and, 99
 Fumarase, 123
 Fumaric hydrogenase, 18
 Fungus
 diseases, see Fungus
 diseases
 obligately parasitic, 225
 soil aggregation and, 77
 Fungus diseases
 experimental cultures of,
 236-38
 host alteration from, 238-
 44
 host environment, effect on
 parasite, 229-38
 host restriction
 clones, 226
 genetic basis of, 225-27
 inception of, 225-29

mildew
 downy, 225
 powdery, 225
 penetration of, time factor
 in, 228
 physiological aspects of,
 225-44
 resistance to, 227-29
 chemical basis of, 228-
 29
 mineral elements and,
 229-31
 toxins and, 239
 see also Fungus disease,
 susceptibility to
 rust, 225
 spore development
 on artificial substrata,
 227
 on uncongenial plants,
 227-28
 zinc and, 227
 susceptibility to, 226
 carbohydrate and, 231-
 32
 growth substances and,
 234-35
 light and, 232-33
 metabolism of host and,
 235-36
 mineral elements and,
 229-31
 prior infection and, 236
 temperature and, 233-34
 symptoms of, 238-44
 auxin change and, 241-42
 carbohydrate accumula-
 tion and, 242-43
 carotenoid changes and,
 240-41
 causes, 238
 growth factor change
 and, 241-42
 lipid changes and, 240-
 41
 nitrogenous compounds,
 240
 permeability, 239-40
 phosphorus accumulation
 and, 242-43
 photosynthesis and, 243
 respiration and, 243-44
 toxins and, 239
 virus multiplication, 244

G

Genetics
 in chloroplasts, 285
 dormancy and, 200-1
 plant geography and, 249-
 68
 Geotropism, 172-79
 auxin and, 174-76
 effect of light on, 176
 effect of time on, 173-74,
 176

electrical activity in, 172
 indole-3-acetic acid, 176
 inhibitors of, 172
 of leaves, 176-77
 metabolic changes and, 174
 respiration and, 174
 of stamens, 176
 translocation in, 172-73
 Glucose, and nitrogen
 metabolism, 61
 Glutamine synthesis, 123
 Glutathione synthesis, 123
 Glycerol, and geotropism,
 172
 Glycolic oxidase, 123
 Glycols
 Hill reaction and, 297
 Glycolysis
 resistance to fungus and,
 235
 Grana
 enzymatic studies and, 116
 structure of, 284-85
 Gravitation, and geotropism,
 172-79
 Griseofulvin, in phototropism,
 167
 Growth
 factors, fungus disease and,
 241
 inhibition of, 199-200
 interruption of, 183-85
 substances, see Growth
 substances
 Growth substances
 crown gall and, 141-42
 2,4-dichlorophenoxyacetic
 acid, 219-20
 disease control and, 220
 fruit drop control by,
 220
 fungus disease and, 234-35
 postharvest behavior and,
 219-21
 ripening and, 221
 sprouting and, 220

H

Hematin, photosynthesis and,
 95
 Hexokinase, 122, 123
 Higher plants
 enzyme localization in,
 115-29
 nonchlorophyllous photo-
 synthesis in, 106-7
 carotene, 106
 cryptoxanthin, 106
 eloxanthin, 106
 luteins, 106
 zeaxanthin, 106
 Hill reaction, 290, 297-313
 chemiluminescence in, 307
 components of, 297-98
 extrinsic factors, effects
 of, 308-10

- fluorescence in, 306-7
intermediates in, 312
light, flashing and, 310-13
anaerobiosis and, 311
mechanism of, 298-300
inhibition of, 299, 305,
308-9
oxidant participation mode,
300-8
cytochromes and, 302-3
illumination and, 303
quinones in, 300-2
rate of, 300-1
tricarboxylic acid cycle,
304
pH and, 313
photoreduction coupled
enzyme, 123
photosynthesis in, velocity
of, 308-10
quantum requirements, 314-
15
- Hormones**
role of, in geotropism, 178
see also Auxin
- Horticulture**
dormancy in, 197-200
chilling requirements,
197, 199
climatic variations, 198
prolongation of, 199-200
sprays and, 197-98
foliar nutrient sprays, 31-
51
- Humus**, composition of, 76-
77
- Hydrogen**
chlorophyll and, 278
- I**
- Indole-3-acetic acid**
effect of
on geotropism, 176
on phototropism, 163-65,
167-69
- Indoleacetaldehyde**
as auxin, 341-72
- Indoleacetic acid**
as auxin, 341-72
crown gall and, 135-36
- Indoleacetic acid oxidase**
auxin destruction and, 369-
72
- Indoleacetonitrile**, as auxin,
341-72
- Indolepyruvic acid**, as auxin,
341-72
- Inhibition**, correlated, 183-84
see also Dormancy
- Inhibitors**
auxin and, 359
of carbohydrate metabolism,
10
crown gall and, 147-48
and dormancy, 183
of fungus, 235
- geotropic, electrical
activity of, 172
growth, rest-breaking,
193
of Hill reaction, 299, 305,
308-9
respiratory, and thermo-
nasty, 180
- Ionization**, and auxin
destruction, 364-65
- Iron**
algal nutritive require-
ments, 57, 69-70
as foliar nutrient
fixation of, 31
plant response to, 31-32,
44, 48
purpose of, 31
as soil conditioner, 84
- Isomerase**, 123
- K**
- Keto-acid**, auxin and, 354-
55
- α -ketoglutaric oxidase, 123
- L**
- Leaf**, nutrition and, see
Nutritive sprays
- Leaf-fall**, 183
- Leaves**, geotropism of,
176-77
- Lecithinase**, 123
- Leucine aminopeptidase**
as catalyst, 6
ion requirements, 6
- Light**
and auxin destruction, 361-
64
and dormancy, 196
effect on geotropism, 176-
78
fluorescence in, protein
and, 294
fungus disease and, 232-
33
Hill reaction and, 298, 303
chemiluminescence in,
307
flashing light and, 310-13
and nonchlorophyllous
photosynthesis, 93-111
phosphatase and, 289
and phototropism, 164-72
- Lignins**, soil conditioners
and, 78
- Lipids**, fungus disease and,
240-41
- Lithium**, fungus disease and,
230
- M**
- Magnesium**
algal nutritive
requirements, 57, 67-
68
carbohydrate metabolism
and, 8
chlorophyll development
and, 293
fluorescence and, 272-76,
278, 290, 295
as foliar nutrient
Epsom salts, 37-38
plant response to, 37-38
- Maleic hydrazide**, as
inhibitor, 220
- Malic oxidase**, 123
- Manganese**
algal nutritive require-
ments, 57, 70
decarboxylation and, 25
as foliar nutrient, plant
response to, 33-34
hydrolysis and, 25
see also Enzyme systems,
micronutrient
elements in
- Mercury**, fungus disease
and, 231
- Metabolism**
resistance to fungus and,
235-36
- Metallic ions**
decarboxylation and, 4
metallo-proteins and, 1,
6
multiple activation of
enzymes, 13
phosphorylation and, 2
see also Enzyme systems,
metallic requirements
of
- Metallo-flavoproteins**, 15-
19
butyryl coenzyme A
dehydrogenase, 15
diphosphopyridine
nucleotide (DPNH)
cytochrome-c
reductase, 18-19
fumaric hydroxylase, 18
nitrate reductase, 15-17
xanthine oxidase, 17-18
- Metallo-proteins**
catalytic properties of,
2-8
enzyme action, 2-3
increased catalyzation,
48
protein alteration, 3-4
ionic properties of, 1
- Metals**
enzyme requirements for,
8-15, 21-25
as foliar nutrients, 31-34
function of, in peptidases, 1
see also Metallo-flavo-
proteins; and Metallo-
proteins
- Microsomes**

- enzymatic studies and, 117, 127
- Mildew
development of, nitrogen and, 230
downy, 225, 227
powdery, 225, 227, 240
see also Fungus diseases
- Minerals
as nutrients, 1, 55-71
- Mitochondria, 186
chemical analysis of, 124
definition of, 121
electron microscope and, 122
enzymatic studies and, 116, 117, 120-24
- Molybdenum, 17-18
algal nutritive requirements, 57
as foliar nutrient, plant response to, 34
- N
- Napthaleneacetaldehyde
as auxin, 341-72
- Napthaleneacetic acid,
as auxin, 341
- Narcotics
as inhibitors, in Hill reaction, 299
- Nastic movements, 163-81
auxins and, 163, 177
of petioles, 177
- Nitrate, reduction of,
nitrate reductase and, 15-17
- Nitrate reductase, 15-17
- Nitrile, auxin and, 356-57
- Nitrogen
algal nutritive requirements of, 56-57, 59, 61-64
crown gall and, 142, 149-50
fixation, 62
in photosynthesis, 327-28
as foliar nutrient
amounts used, 35-36
plant response to, 35-37, 47-48
fungus disease and, 229-30, 240
leaf nitrogen status, effect on
spray absorption, 43-44
soil conditioners and crop uptake, 88
- Nucleic acids, in chloroplasts, 286-87
- Nutrition
foliar application, see Nutrient sprays
of phytoplankton, 55-71
- Nutritive sprays, 31-51
absorption of
factors affecting, 39-46
- see also Spray absorption
feasibility of, 49-51
application methods, 50
economic consideration, 50
fixation loss and, 49
plant responses to, 31-39
boron, 34
copper, 33
iron, 31-32
macronutrient elements, 35-39
magnesium, 37-38
manganese, 33-34
micronutrient elements, 31-34
molybdenum, 34
nitrogen, 35-37
phosphorus, 38-39
potassium, 38-39
sulfur, 39
zinc, 32-33
soil application versus, 51
use of by plant, factors affecting, 46-49
- O
- Oil
apple scald and, 211
and fruit storage, 207-8
sprays, dormancy and, 198
- Organs, interaction of, 187-89
- Oxalacetic oxidase, 123
- Oxidants
in Hill reaction, 300-8
oxygen, 306
quinones, 300-2, 305
rate of, 300
thioctic acid, 305
- Oxidase, crown gall and, 151
- Oxidative phosphorylation, 123
- Oxygen
chlorophyll and, fluorescence in, 275-82
and disease of fruits and vegetables, 206-11
as inhibitor, 306
as oxidant, 306
photosynthesis and, 282
role of, in phototropism, 167, 169
soil aeration and, 78
- P
- Parasites, see Fungus diseases
- Pear, scald of, 213
- Pectin, postharvest changes, 205
- Pectinesterase, 123
- Peroxidase, crown gall and, 151
- Peroxides
and auxin destruction, 360
- Petiole
role of, in geotropism, 176
- Petroleum oil sprays
and dormancy, 195
- pH
algal nutrition and, 60-61
decarboxylation and, 5
iron sprays and, 48
metallo-proteins and, 3
- Phenols, apple scald and, 212
- Phenylacetaldehyde oxidase
system, 353
- Phosphatase, 123
in chloroplasts, 289
- Phosphate, respiration and, 215-16
- Phosphorus
accumulation in fungus disease, 242-43
algal nutritive requirements, 56-57, 59, 64-67
crown gall and, 142, 150
as foliar nutrient, plant response to, 38-39, 48
- Phosphorylase, 123, 125
- Phosphorylation
metallic ions and, 2
chart of, 11
- Photosynthesis, 271-329
in algae, 60, 70
algae metabolism and, 324-26
bacterial, 326-27
carbon dioxide fixation in cell-free preparations, 323-24
intermediate process of, 322-23
isotope effects on, 323
chloroplast structure and composition, 282-93
energy transfer mechanism, 293-97
enzymes and, 124, 287
fungus disease and, 232-33, 235, 243
Hill reaction, 297-313
intermediates in, 312
natural conditions of, 328
nitrogen fixation in, 327-28
nonchlorophyllous, 93-111
absorption and, 94-95
algae and, 96-106
bacterial, 93
carotenoids and, 93-94
chromatic adaptation, 107-8
diatoms and, 98-102
energy transfer in, 110-11
fluorescence and, 109-10
higher plants and, 106-7
inactive pigments, 95
mechanism of, 108-11
phycobilins and, 94

- pigments concerned, 93-96
 - proteins and, 94
 - unknown pigments, 95-96
 - oxygen and, 282
 - pigment interaction in, 293-97
 - pigment photochemistry, 271-82
 - pigment separation in, 292
 - quantum requirements, 313-22
 - carbon dioxide, 315-16
 - for Hill reaction, 314-15
 - oxygen, 317
 - water and oxidation of, 297
 - see also Hill reaction
 - Phototropism, 164-72
 - auxins and, 163-65
 - in *Avena coleoptile*, 164-65, 170-71
 - carotene and, 164
 - chitin and, 167, 169
 - effect of age on, 169-70
 - fluorescent dyestuffs and, 168
 - griseofulvin and, 167
 - indole-3-acetic acid and, 164, 167-68
 - liquid paraffin and, 168, 169
 - oxygen and, 167
 - photoelectric activity and, 169-70
 - in *Phycomyces*, 165
 - riboflavin and, 164
 - role of blade in, 166
 - role of stalk in, 166
 - of roots, 168
 - triodobenzoic acid and, 166
 - in *Tropaeolum*, 165
 - Phycobilins
 - absorption spectrum of, 95
 - photosynthesis and, 94
 - Phycocyanin
 - in blue-green algae, 105
 - fluorescence and, 294
 - Phycocerythrin, absorption spectrum, 95, 104-5
 - Phycomyces*, phototropism in, 165, 166
 - Physiology
 - of fruits, postharvest disease, 205-21
 - plant geography and, 249-68
 - of vegetables, postharvest disease, 205-21
 - Phytoplankton
 - mineral nutrition of, 55-71
 - absolute requirements, 55
 - algae used in study of, 56
 - boron, 57
 - calcium, 57, 67-68
 - carbon, 57, 59-61
 - cobalt, 57
 - copper, 57
 - essential nutrients, 59-71
 - iron, 57, 69-70
 - magnesium, 57, 67-68
 - manganese, 57, 70
 - minimum requirement, 56
 - molybdenum, 57
 - nitrogen, 56-57, 59, 61-64
 - normal requirement, 55-56
 - nutrient concentration chart, 58
 - optimum requirement, 56
 - pH and, 60-61
 - phosphorus, 56-57, 59, 64-67
 - potassium, 57, 65, 68-69
 - silicon, 57, 70
 - sodium, 57, 68-69
 - study requirements of, 56
 - sulfur, 57, 67
 - trace elements, 57, 70-71
 - zinc, 57
 - Pigments
 - carotene, photochemistry of, 272-82
 - chlorophyll, photochemistry of, 272-82
 - photosynthesis and, 93-111
 - carotenoids, 93-94
 - interaction of, 293-97
 - separation of, 292
 - porphyrin, photochemistry of, 272-82
 - Plant geography
 - experimental studies and, 257-64
 - physiology and, 249-68
 - polyploidy and, 264-68
 - Plant regulators, see Auxin
 - Plant tumors
 - physiology of, 133-57
 - see also Crown gall
 - Plasmodesmata, loss of, 186-87
 - Plastids, enzymatic studies and, 117, 124-25
 - Polarization, of pigments, 271-72
 - Polyelectrolytes, synthetic
 - determination of, 82
 - mechanism of action of, 89-90
 - soil aeration and, 82-84
 - soil aggregation and, 82-84
 - soil condition and, 83
 - soil-water relationships and, 82-84
 - Polyphenol oxidase, 123
 - Polysaccharides
 - as soil aggregators, 77-79
 - Polyuronides
 - as soil aggregators, 77-79
 - Porphyrin
 - photochemistry of, 271-82
 - in vitro reactions, 272-82
 - structure and theory, 271-72
 - Postharvest physiology
 - in fruits, 205-21
 - in vegetables, 205-21
 - Potassium
 - algal nutritive requirements, 57, 65, 68-69
 - as foliar nutrient, plant response to, 38-39
 - fungus disease and, 229
 - soil conditioners and crop uptake, 88
 - Prolidase, ion requirements, 6
 - Protein
 - auxin binding and, 367-68
 - in chloroplasts, 285-86, 289-91
 - Hill reaction and, 298
 - hydrolysis, 190
 - photosynthesis and, 94
 - see also Metallo-flavoproteins; and Metallo-proteins
 - Protoplast, in dormancy, 194-95
 - Pyruvate, 123
 - Pyruvate kinase, 123
- Q
- Quantum requirements
 - in photosynthesis, 313-22
 - Quinones
 - in Hill reaction, 300-2, 305
- R
- Respiration
 - chilling and, 215
 - crown gall and, 150-51
 - ethylene and, 214-15
 - fungus disease symptoms, 243-44
 - and geotropism, 174
 - phosphate and, 215
 - resistance to fungus and, 235
 - and rest breaking, 193-94
 - temperature and, 218
 - and thermonasty, 180-81
 - volatile emanations and, 214-16
 - Rest
 - biochemical aspects of, 185
 - breaking of, 187-88
 - auxin and, 188, 192-93
 - in buds, 187-91
 - respiration and, 193-94
 - in seeds, 191
 - temperature and, 188-89, 197, 199
 - in buds, 186-89
 - in bulbs, 184
 - chemical changes during, 189-92
 - acids and, 190

- accumulation of food, 189
 protein hydrolysis, 190
 sequence of, 190
 in corns, 184
 cytological phenomena of, 186
 description of, 184-87
 factors causing, 185
 horticultural aspects, 185
 physical changes during, plasma, 194
 water, 194
 processes of, 189-97
 auxin inhibitor mechanism of, 192-94
 chemical changes, 189-92
 physical factors of, 194-97
 protoplast contraction in, 187
 in seeds, 184, 191
 stages of, 185
 temperature and, 184-86
 termination of, 184-85
 in tubers, 184
 see also Dormancy
 Rhizome, geotropism of, 177-79
 Riboflavin
 and auxin-destruction, 362-63
 photosynthesis and, 95
 phototropism and, 164
 Ripening
 2,4-dinitrophenol and, 215
 volatile emanations and, 215
 Roots
 dormancy of, 187
 geotropism in, 175
 phototropism in, 168-70
 age of root and, 170
 auxin action in, 170
 Rust, 225-26
 see also Fungus diseases
- S
- Schenck general reaction
 scheme of chlorophyll, 279-82
 Silicates, as soil conditioners, 84
 Silicon, algal nutritive requirements, 57, 70
 Sodium, algal nutritive requirements, 57, 68-69
 Soil
 aggregation, 77, 82-84
 conditioners, 75-90
 aeration, 80, 82-84
 alginate, 81-82
 application of, 85
 cellulose products and, 80
 crop response to, 86-88
 fertilizers and, 88-89
 formulations, 84
 humus, 76-77
 kinds of, 84
 laboratory evaluation of, 79-80
 natural conditioners, 76-77
 nutrient availability and, 88
 organic matter and, 75
 polysaccharides, 77-79
 polyuronides, 77-79
 soil aggregation, 77, 82-84
 soil erosion and, 89
 soil productivity, 81-82
 soil structure and, 75
 stability of, 85-86
 synthetic, 85-86
 synthetic polyelectrolytes, 82-84, 89-90
 toxicity of, 89
 water relationships and, 82-84
 erosion of, 89
 fertility of, see Soil conditioners
 Soils, plant geography and, see Plant geography
 Sorbose, fungus disease and, 232
 Spectrum changes, see Fluorescence
 Spray absorption
 factors affecting
 chemical composition of spray, 44-45
 contact angle, 39-40
 humidity, 42-43
 leaf age, 43-44
 losses to surroundings, 45-46
 nitrogen status, 43-44
 paths of entry, 40-42
 surface wetting, 39-40
 temperature, 42-43
 rates of, 41-42
 Sprays, nutritive, see Nutritive sprays
 Sprouting
 postharvest control of, 220
 Stalk, role of
 in phototropism, 166
 Stamens, geotropism of
 effect of light on, 176
 Starch
 metabolism
 and dormancy, 183
 in geotropism, 174-75
 synthesis of, 288
 Starch grains
 enzymatic studies and, 116
 Succinic oxidase, 123
 Sucrose phosphorylase, 123
 Sugar
 fungus disease and, 231
 metabolism
 in fruit storage, 218
 and geotropism, 174
- Sulfur
 algal nutritive requirements, 57, 67
 as foliar nutrient, plant response to, 39
- T
- Tannins, photosynthesis and, 95
 Temperature
 dormancy and, 184-86, 197
 effect on flowers, see Thermomasty
 effect on spray absorption, 42-43
 fruit storage and, 206, 208-9
 fungus disease and, 233-34
 in Hill reaction, 298
 respiration and, 218
 rest breaking, 187-89
 volatile emanations and, 215
 see also Chilling
 Thermomasty, 179-81
 respiration and, 180-81
 Thiocetic acid
 in Hill reaction, 305
 Toxins, fungus disease and, 239
 Transpiration
 chlorophyll and, 293
 Tricarboxylic acid cycle, 304
 Triiodobenzoic acid
 and phototropism, 166
 Tropaeolum, phototropism in, 165
 Tropisms, 163-81
 indole-3-acetic acid and, 163
 Tryptophan
 and auxin formation, 351-52
 Tyrosinase
 crown gall and, 151
- U
- Ulva
 absorption spectra chart, 97
 photosynthesis in, 97
 reproduction in, 97
 Uronic acid
 soil conditioning and, 77
 Ursolic acid, apple scald and, 211
- V
- Vegetables
 physiology of, postharvest, 205-21
 Viruses
 chloroplasts and, 292

SUBJECT INDEX

399

fungus disease, effect of
on, 244
Vitamin C, see Ascorbic
acid
Vitamins, postharvest
change, 205, 218
Volatile emanations
ethylene, 214-15
and functional diseases,
see Disease, func-
tional
and respiration, 214-16
ripening and, 215
temperature and, 215

W

Water
dormancy and, 194-95
effect of, on geotropism, 177
oxidation of, 297
Waxes
apple scald and, 211-12
Woody plants
dormancy in, 183-201

X

Xanthine oxidase, 17-18

Z

Zinc
algal nutritive require-
ments, 57
as foliar nutrient
concentration of, 33
plant response to, 32-
33
spray versus dust,
32
fungus spore development
and,
227, 231